

COMMUNITY FOREST ENTERPRISE AND CERTIFICATION IN MEXICO

*A Review of Experience with Special Reference
to the Union of Zapotec and Chinantec Forestry
Communities (UZACHI), Oaxaca*

Matthew D. Markopoulos
Oxford Forestry Institute
South Parks Road
Oxford OX1 3RB
United Kingdom

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EXECUTIVE SUMMARY

Background to the study

Mexico has more forests under active community control than any other country in the world. More than 8,000 communities, the majority of which are indigenous, hold up to 80% of the country's forest lands. For many of these communities, forestry complements farming, ranching and other economic activities; for some, mainly in northern Mexico, it constitutes their principal source of income and employment.

Community forestry in Mexico emerged in a highly regulated forestry sector, protected by import tariffs and other direct controls. These controls were designed to encourage the development of a domestic forest industry, thereby reducing the economy's reliance on imports. In the absence of foreign competition, however, both community and industrial producers disregarded price and quality concerns. Since 1986, progressive deregulation and liberalisation of Mexico's domestic forest products market have exposed community producers to competition from cheaper and better-quality imports.

Although the competitive position of the community forestry sector has been improved by the devaluation of the Mexican peso in 1995, its long-term future is still uncertain. In view of the social and environmental values that community forestry embodies, new measures of support would be justified. Here, the market-based reforms that have weakened community forestry could be turned to its advantage. Deregulation and liberalisation offer scope for developing market-based instruments to support rational forest exploitation. One such instrument is certification.

Certification is designed to improve forest management by linking market demands for sustainably produced forest products with producers who can meet such demands. Although there are positive indications that certification can achieve its purpose, many issues and uncertainties have yet to be resolved. It is unclear, for example, whether certification standards and procedures can deal effectively with socially differentiated and diverse communities, and their land use systems. It is also unclear how community producers will bear the costs, and risks, of identifying and serving certified products markets.

The aim of this study is to examine the current status of community forest certification in Mexico, and to assess its future prospects. The study focuses on the experiences of the Union of Zapotec and Chinantec Forestry Communities (UZACHI) in the southern state of Oaxaca, which was one of the first community organisations to be certified in Mexico. A combination of approaches has been used in the study, including field investigation, in-depth interviews with key informants and literature review.

Emerging issues in community forest certification in Mexico

The development of forest management standards according to Forest Stewardship Council (FSC) guidelines has progressed rapidly in Mexico. This process, which began in 1996, has been supported by a working group of major forest stakeholders, including community and

indigenous peoples organisations, NGOs, professional groups and some private companies. The standards development initiative has been openly supported by the Mexican government; foreign donors have financed ancillary workshops and technical studies. Four sets of regional standards and one national set are nearing completion.

Demand for certification is rising slowly among community producers in Mexico's main timber-producing states, including Durango, Jalisco, Michoacán, Oaxaca and Quintana Roo. Certification-related activity is greatest in Durango, where price competition from imports has been particularly intense. Commercial successes attributable to certification are still limited; of note is the private company Noram, which, in partnership with a group of communities in Durango, is using certification to improve its share in British and American charcoal markets.

Although community forest certification in Mexico is still at an early stage, it is possible to identify several issues that will influence its future development and implementation:

- *Costs and subsidies*: Cost is a crucial issue given the predominance of small community producers in Mexico. The potential scale of certification costs is difficult to determine. Detailed cost estimates are not widely available and most certified communities have received financial support for certification from donors, certifiers, timber buyers and other parties. Subsidies to individual producers may be appropriate in the early stages of community forest certification, but their long-term sustainability and ability to trigger cumulative change are doubtful.
- *Development of certified markets*: The market incentives offered by certification may have little influence on producer behaviour if the weak peso and an improving economy continue to fuel demand for Mexican forest products. Certified markets in America, Mexico's main trading partner, are also still small and fragmented. Most communities have limited production and marketing capacities, and will depend heavily on intermediaries such as producer associations, trade-oriented NGOs and private companies to penetrate certified markets.
- *Diversity of forest communities*: Mexican evaluators have found that existing certification standards lack the precision needed to deal with local variation between communities. The preparation of regional standards by Mexico's standards development initiative offers scope for greater specificity. However, the factors that influence the sustainability of community forest management in Mexico cannot always be defined according to neat geographical divisions. Standards tailored to different producer types may also be needed.
- *Local traditions and the applicability of certification*: Current certification systems assume that forests are under formal, well-documented and stable management regimes, strictly delimited according to area and institutional responsibility. Only a small proportion of the communities in Mexico conforms to these assumptions; the majority employ informal or mixed management regimes. This majority could be accommodated by changes to certification standards and procedures, but may be better served by alternative measures of support without an explicit market bias.

UZACHI: The experiences of a certification pioneer

The four Zapotec and Chinantec communities that constitute UZACHI manage almost 22,000 hectares of temperate pine and mixed pine-oak forests in the mountains of northern Oaxaca. Between 1956 and 1981, these forests were concessioned to a pulp and paper company and selectively exploited for pine. The communities regained control of their forests in the early 1980s, but were left with extensively degraded pine stocks. UZACHI was formed in 1989 to deal with a number of common forestry-related issues, one of which was forest restoration.

The initial driving force behind certification came from Rural Studies and Assistance (ERA), a local NGO and long-term supporter of UZACHI. The president of ERA (who went on to launch Mexico's national standards development initiative) suggested certification as a tool for marketing oak and other lesser known broadleaf species. Escalating price competition from cheaper pine imports enhanced the appeal of this strategy. UZACHI was also conscious that certification could raise its profile and provide useful feedback on its forest restoration practices.

The Rainforest Alliance's Smart Wood programme carried out a full evaluation of UZACHI in 1995. The evaluation was organised by UZACHI and ERA, but the greater part of its estimated US\$12,000 cost was borne by Smart Wood and its local partner, the Mexican Council for Sustainable Forestry (CCMSS). UZACHI was officially certified in 1996 as 'well-managed with conditions'. A synopsis of the impacts of certification on UZACHI is given below.

- *Forest management and administration* : Smart Wood found no major faults in UZACHI's management scheme. The conditions of certification are designed to consolidate existing practices. However, Smart Wood asked UZACHI to suspend pine regeneration fellings in mixed pine-oak forests because of the high wastage of oak and other broadleaf species. UZACHI has not complied with this condition because it conflicts with the objective of restoring pine stocks. UZACHI sees certification as a valuable monitoring and evaluation tool, albeit one that has greatly increased the organisation's administrative burden.
- *Marketing of certified products* : Internal constraints, coupled with changing market conditions, have limited the commercial benefits of certification. UZACHI has received sales inquiries from buyers of certified timber in Britain and America, but lacks the production capacity, processing technology, managerial skills and distribution channels needed to meet market expectations. The devaluation of the peso and high transport costs have also reduced import penetration in Oaxaca. Local pine markets continue to provide the bulk of UZACHI's sales.
- *Social aspects*: Smart Wood's evaluation found that the accountability and transparency of the community institutions involved in forest enterprise were generally good. However, the traditional practice of rotating managerial positions, although intended to prevent corruption (and increase training opportunities), adds to inefficiencies in enterprise management. Smart Wood asked that managerial staff remain in their positions for at least two to three years, but this condition has been poorly received. With only a few exceptions, all positions are still subject to regular rotation (which can be as frequent as once a year).

- *External relations*: UZACHI and its supporters believe that certification has had a positive effect on relations with government, donors and other external entities. Levels of trust and confidence between UZACHI and Mexico's environment ministry currently are high. UZACHI has secured financial and technical support from several donors since becoming certified, and has also contributed to Mexico's standards development initiative. The true impact of certification can be debated (UZACHI has always worked hard to build external relations), but it has undoubtedly enhanced UZACHI's image and confidence as an organisation.

Conclusions

Despite the lack of marketing success, UZACHI has persevered with certification because a) it has not had to make any major changes to management; b) external support has removed much of the associated risk; and c) it values ancillary benefits such as regular monitoring and feedback. Not all communities will enjoy the same advantages, however, or place an equal value on certification's ancillary benefits. Most communities will pursue certification for its putative market benefits. If these prove hard to obtain, communities will soon lose interest. Clearly, measures may be needed to widen the appeal and accessibility of certification:

- *Lowering entry barriers*: The cost, and risk, of certification can be reduced by measures such as the provision of information and technical assistance, consulting forester and group certification schemes, and the development of a competitive market in FSC-accredited certification services. There is potential for all of these measures in Mexico. For example, the professional foresters who provide management planning services to communities could be involved in offering technical assistance, or in consulting forester certification schemes.
- *Alternative market applications*: The commercial value of certification could be increased by developing markets for certified non-timber products or certified environmental services. Technical and marketing constraints, however, may limit the value of these applications. Certification could improve access to equity or debt financing, or insurance, by signalling the extent of a producer's environmental liabilities. This application may have value for joint ventures and other corporate-community partnerships in Mexico.
- *Alternative non-market applications*: Rather than engaging in direct intervention, the Mexican government could use certification to structure a self-regulatory system for community producers. This strategy would fit in well with the current trend in forest policy towards deregulation. The main preconditions for a self-regulatory system include political will, compatibility between legal requirements and certification standards, and an adequate number of communities with the resources to self-regulate.

Ultimately, the problems that communities face in marketing certified wood products will have to be addressed. The main problem is that diseconomies of small size place communities at a competitive disadvantage in global markets. Cooperation between communities, or between private companies and communities, can overcome this problem, but is not without drawbacks (such as reduced flexibility). Where appropriate, external support for certification should aim to encourage cooperation and enable groups of producers to exploit economies of scale.

RESUMEN EJECUTIVO

Antecedentes del estudio

México tiene más bosques bajo el control activo de comunidades que en cualquier otro país del mundo. Entre más de 8,000 comunidades, la mayoría indígenas, poseen hasta el 80% de los terrenos forestales del país. Para muchas de estas comunidades, el manejo forestal complementa la agricultura, ganadería y otras actividades económicas; para otras, principalmente en el norte de México, constituye su fuente principal de ingresos y empleo.

La silvicultura comunitaria en México surgió en un sector forestal altamente regulado, protegido por aranceles de importación y otros controles directos. Estos controles fueron diseñados para fomentar el desarrollo de una industria forestal doméstica, reduciendo por consiguiente la dependencia económica de las importaciones. Sin embargo, a falta de competencia extranjera, los productores forestales comunitarios e industriales desatendieron los asuntos de precio y calidad. Desde 1986, la desregulación y liberalización progresiva del mercado doméstico de productos forestales han expuesto a los productores comunitarios a una competencia frente a importaciones más baratas y de mejor calidad.

Aunque la competitividad del sector forestal comunitario ha sido mejorada por la devaluación del peso mexicano en 1995, su futuro a largo plazo aún es incierto. Dados los valores sociales y ambientales representados por la silvicultura comunitaria, estarían justificadas nuevas medidas de apoyo. Aquí, se podría sacar provecho de las reformas de mercado que han debilitado a los productores comunitarios. La desregulación y la liberalización ofrecen posibilidades para desarrollar instrumentos de mercado que apoyen la explotación racional del bosque. Un instrumento de ese tipo es la certificación forestal.

La certificación se ha diseñado para mejorar el manejo forestal uniendo las demandas del mercado de productos maderables originados en bosques bien manejados con los productores que pueden satisfacer tales demandas. Aunque hay indicaciones positivas que la certificación puede lograr su propósito, aún tienen que resolverse muchos asuntos e incertidumbres. Por ejemplo, no está claro si los estándares y procedimientos de la certificación pueden ocuparse con eficacia de comunidades rurales variadas y socialmente diferenciadas, y sus sistemas de utilización de la tierra. Tampoco está claro el modo en que los productores comunitarios asumirán los costes y los riesgos de identificar y abastecer mercados certificados.

El objetivo de este estudio es examinar la situación actual de la certificación forestal comunitaria en México, y evaluar sus perspectivas. El estudio se centra en las experiencias de la Unión de Comunidades Productoras Forestales Zapotecas-Chinantecas (UZACHI) en el estado sur de Oaxaca, que fue una de las primeras organizaciones comunitarias certificadas en México. El estudio ha usado una combinación de métodos, como investigación de campo, entrevistas exhaustivas con personas relevantes y revisión de literatura.

Asuntos emergentes de la certificación forestal comunitaria en México

El desarrollo de estándares de manejo forestal según las normas del Consejo Forestal Mundial (FSC) ha progresado rápidamente en México. Este proceso, que comenzó en 1996, ha sido apoyado por un grupo de trabajo de partes interesadas ('stakeholders') en el bosque, como organizaciones comunitarias e indígenas, ONGs, grupos profesionales y algunas empresas privadas. La iniciativa nacional de desarrollo de estándares ha sido apoyado abiertamente por el gobierno mexicano; los donantes extranjeros han financiado talleres y estudios técnicos de apoyo. Cuatro series de estándares regionales y una serie nacional están por ser terminadas.

La demanda de certificación entre productores comunitarios está aumentando lentamente en los principales estados productores forestales de México, como Durango, Jalisco, Michoacán, Oaxaca y Quintana Roo. La mayor actividad relacionada con la certificación se produce en Durango, donde la competencia frente a las importaciones ha sido particularmente intensa. Los éxitos comerciales atribuibles a la certificación son todavía limitados; de particular interés es la empresa privada Noram que, en asociación con un grupo de comunidades en Durango, está usando la certificación para mejorar su cuota en mercados británicos y americanos del carbón de encino.

Aunque la certificación forestal comunitaria en México todavía está en una etapa temprana, se pueden identificar varios asuntos que influirán en su desarrollo e implementación:

- *Costos y subsidios*: Dado el predominio de productores pequeños comunitarios en México, el costo es un asunto crucial. La escala potencial de los costos es difícil de establecer. La estimación detallada de costos de certificación no está ampliamente disponible y la mayoría de las comunidades certificadas han recibido apoyo financiero para la certificación de donantes extranjeros, certificadores y compradores de productos entre otros. Los subsidios a productores individuales pueden ser apropiados en las etapas tempranas de la certificación forestal comunitaria, pero su sostenibilidad a largo plazo y capacidad de provocar un cambio acumulativo son dudosas.
- *Desarrollo de mercados certificados*: Los incentivos de mercado ofrecidos por la certificación pueden influir poco en la conducta de productores si el débil peso mexicano y una mejora de las condiciones económicas continúan alimentando la demanda de productos forestales mexicanos. Los mercados para la madera certificada en América (el socio comercial principal de México) todavía son pequeños y fragmentados. La mayoría de las comunidades en México tiene una capacidad limitada de producción y comercialización, y dependerán en gran medida de intermediarios tales como asociaciones de productores, ONGs orientadas al comercio y empresas privadas para poder entrar en mercados certificados.
- *Diversidad de las comunidades forestales*: Los evaluadores mexicanos han encontrado que los estándares actuales de la certificación carecen de la precisión necesaria para ocuparse de la variación local entre comunidades. La preparación de estándares regionales por la iniciativa nacional de desarrollo de estándares ofrece posibilidades para

una mayor especificidad. Sin embargo, los factores que influyen en la sostenibilidad del manejo forestal comunitario en México no siempre se pueden definir según divisiones geográficas claras. Los estándares adaptados a distintos tipos de productor también pueden ser necesarios.

- *Tradiciones locales y la aplicabilidad de la certificación* : Los sistemas actuales de certificación suponen que las áreas forestales están bajo sistemas de manejo formales, bien documentados y estables, estrictamente delimitados según área y responsabilidad institucional. Solamente una pequeña parte de las comunidades en México cumplen con estas suposiciones; la mayoría emplea sistemas de manejo no convencionales o una mezcla de sistemas. Esta mayoría podría ser asumida por cambios en los estándares y procedimientos de la certificación, pero puede ser atendida mejor por medidas de apoyo alternativas sin una inclinación comercial explícita.

UZACHI: Las experiencias de un pionero de la certificación

Las cuatro comunidades Zapotecas y Chinantecas que constituyen UZACHI manejan casi 22,000 hectáreas de bosques templados de pino y pino-encino en la Sierra Norte de Oaxaca. Entre 1956 y 1981, estos bosques fueron adjudicados en concesión a una empresa papelera y aprovechados bajo el método de cortas selectivas. Las comunidades recuperaron el control de sus bosques a principios de los años ochenta, pero se quedaron con existencias de pino severamente degradadas. UZACHI fue formada en 1989 para ocuparse de varios asuntos comunes relacionados con la silvicultura, uno de los cuales era la restauración forestal.

El impulsor inicial de la certificación fue la ONG local Estudios Rurales y Asesoría Campesina (ERA), una partidaria de UZACHI desde tiempo atrás. El presidente de ERA (quién llegó a lanzar la iniciativa nacional de desarrollo de estándares) propuso la certificación como una herramienta para la comercialización de encino y otras especies latifoliadas menos conocidas. La competencia creciente frente a importaciones de pino más baratas aumentó el atractivo de esta estrategia. UZACHI también era consciente de que la certificación podría aumentar su prestigio y proporcionar una reacción útil frente a sus prácticas de restauración forestal.

El programa Smart Wood de la Rainforest Alliance realizó una evaluación detallada de UZACHI en 1995. La evaluación fue organizada por UZACHI y ERA, pero Smart Wood y su colaborador local, el Consejo Civil Mexicano para la Silvicultura Sostenible (CCMSS), corrió con la mayor parte del costo estimado de US\$12,000. UZACHI fue certificada oficialmente en 1996 bajo la designación de 'bien manejada con condiciones'. Una sinopsis de los impactos de la certificación en UZACHI se da a continuación.

- *Manejo y administración forestal* : Smart Wood no encontró ningún defecto serio en el sistema de manejo de UZACHI. Las condiciones de certificación se han diseñado para consolidar prácticas actuales. Sin embargo, Smart Wood pidió a UZACHI que suspendiera las cortas de regeneración en bosques mezclados de pino-encino debido al gran desperdicio de encino y otras especies latifoliadas. UZACHI no ha cumplido con esta

condición porque se opone al objetivo de regenerar bosques de pino. UZACHI ve la certificación como una herramienta valiosa de seguimiento y evaluación, aunque haya aumentado mucho la carga administrativa de la organización.

- *Comercialización de productos certificados* : Limitaciones internas, unidas a cambios en el mercado local, han limitado los beneficios comerciales de la certificación. UZACHI ha recibido solicitudes por parte de compradores de madera certificada en Gran Bretaña y América, pero carece de la capacidad de producción, tecnología de procesamiento, experiencia de gestión y canales de distribución necesario para satisfacer las expectativas de mercado. La devaluación del peso mexicano y los elevados costos de transporte también han reducido la entrada de importaciones en Oaxaca. El mercado local de pino sigue proporcionando la mayor parte de las ventas de UZACHI.
- *Aspectos sociales*: La evaluación de Smart Wood encontró que la responsabilidad y transparencia de las instituciones comunitarias involucradas en el manejo forestal eran buenas en general. Sin embargo, la práctica tradicional de rotar puestos gerenciales, aunque dirigida a prevenir corrupción (y aumentar oportunidades de capacitación), aumenta la ineficacia en el manejo. Smart Wood pidió que el personal gerente ocupe su puesto por lo menos durante dos a tres años, pero esta condición ha tenido una acogida desfavorable. Con sólo unas pocas excepciones, todos los puestos están aún sujetos a rotación regular (que puede ser tan frecuente como una vez por año).
- *Relaciones externas*: UZACHI y sus partidarios creen que la certificación ha tenido un efecto positivo en las relaciones con el gobierno, donantes extranjeros y otras instituciones externas. Actualmente existe un alto nivel de confianza entre UZACHI y la secretaría del medio ambiente de México. UZACHI ha conseguido apoyo financiero y técnico de varios donantes desde que está certificada, y también ha contribuido a la iniciativa nacional de desarrollo de estándares. El impacto verdadero de la certificación es discutible (UZACHI siempre ha puesto mucho empeño en desarrollar sus relaciones externas), pero sin duda la certificación ha mejorado la imagen y confianza de UZACHI como una organización.

Conclusiones

A pesar de la falta de éxito en la comercialización, UZACHI ha perseverado con la certificación porque a) no ha tenido que hacer ningún cambio importante a su sistema de manejo; b) el apoyo externo ha eliminado mucho del riesgo vinculado con la certificación; y c) valora beneficios secundarios como un seguimiento y evaluación regulares. Sin embargo, no todas las comunidades gozarán de las mismas ventajas, o concederán igual importancia a los beneficios secundarios de la certificación. La mayoría de las comunidades perseguirán la certificación por sus supuestos beneficios comerciales. Si éstos beneficios resultan difíciles de conseguir, las comunidades pronto perderán interés. Evidentemente, se puede necesitar medidas para ampliar el atractivo y accesibilidad de la certificación:

- *Bajar barreras de entrada* : El costo, y riesgo, de la certificación se pueden reducir con medidas como la provisión de información y apoyo técnico, sistemas de certificación por

grupos o consultores forestales, y el desarrollo de un mercado competitivo en servicios de certificación acreditados por el FSC. Hay posibilidades en México para todas estas medidas. Por ejemplo, los ingenieros forestales profesionales que prestan servicios técnicos forestales a las comunidades podrían involucrarse en la provisión de apoyo técnico, o en sistemas de certificación por consultores forestales.

- *Aplicaciones alternativas de mercado* : El valor comercial de la certificación podría aumentar desarrollando mercados para productos no maderables certificados o servicios ambientales certificados. Sin embargo, limitaciones técnicas y de comercialización pueden limitar el valor de estas aplicaciones. La certificación podría mejorar el acceso a créditos, capital social o seguros, señalando el alcance de las responsabilidades ambientales de un productor. Esta aplicación podría resultar valiosa para las asociaciones en participación y otras formas de colaboración entre comunidades y el sector privado en México.
- *Aplicaciones alternativas no basadas en el mercado* : En vez de intervenir directamente, el gobierno mexicano podría usar la certificación para estructurar un sistema de autorregulación para los productores comunitarios. Esta estrategia se ajustaría bien con la tendencia actual hacia la desregulación en la política forestal mexicana. Las condiciones previas principales para un sistema de autorregulación incluyen la voluntad política, compatibilidad entre las normas oficiales y los estándares de la certificación, y un número suficiente de comunidades con recursos para autorregularse.

En última instancia, tendrán que ser abordados los problemas de comercialización de productos maderables certificados con que se enfrentan las comunidades. El problema principal es que diseconomías de pequeña escala colocan a las comunidades en una situación de desventaja competitiva en mercados globales. La cooperación entre comunidades, o entre empresas privadas y comunidades, puede superar este problema, pero no le faltan inconvenientes (como flexibilidad reducida). Cuando sea apropiado, el apoyo del exterior para la certificación debería tener como objetivo fomentar la cooperación y permitir a grupos de productores explotar las economías de escala.

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ACRONYMS AND DEFINITIONS

AMACUP	Asociación Mexicana de Arte y Cultura Popular (Mexican Association for Popular Art and Culture)
ASETECO	Asesoría Técnica a Comunidades Oaxaqueñas (Technical Assistance for Oaxacan Communities)
CAR	Corrective action request
cargo	Unpaid civil or religious office
CCMSS	Consejo Civil Mexicano para la Silvicultura Sostenible (Mexican Council for Sustainable Forestry)
CDM	Clean Development Mechanism
CEC	Commission for Environmental Cooperation
CERTIFOR	Sociedad para el Manejo Forestal Sostenible (Society for Sustainable Forest Management)
COEF	Consejo Estatal Forestal (State Forestry Council)
comunero	Registered community member with land and voting rights
CONAF	Consejo Técnico Consultivo Nacional Forestal (National Forestry Council)
dbh	Diameter at breast height (1.3m above ground level)
derecho de monte	Stumpage fee
DFID	British Department for International Development
ejido	Form of land tenure constituting a land grant for usufruct to a population group
ERA	Estudios Rurales y Asesoría Campesina (Rural Studies and Assistance)
FAPATUX	Fábricas de Papel Tuxtepec (Tuxtepec Paper Factories)
FONAFE	Fondo Nacional de Fomento Ejidal (National Fund for Community Development)
FOVIGRO	Forestal Vicente Guerrero
FSC	Forest Stewardship Council
GATT	General Agreement on Tariffs and Trade
GEA	Grupo de Estudios Ambientales (Environmental Studies Group)
IIED	International Institute for Environment and Development
ISO	International Organisation for Standardisation
IXCAXIT	Unidad Forestal Ixtlán-Capulalpam-Xiacuí-La Trinidad (Ixtlán-Capulalpam-Xiacuí-La Trinidad Forest Production Unit)
MDS	Método de Desarrollo Silvícola (Method of Silvicultural Development)
MMOM	Método Mexicano de Ordenación de Montes (Mexican Method of Harvesting)

NAFEC	North American Fund for Environmental Cooperation
NAFTA	North American Free Trade Agreement (in Spanish, TLC)
NGO	Non-governmental organisation
NTFP	Non-timber (or non-traditional) forest product
ODI	Overseas Development Institute
ODRENASIJ	Organización para la Defensa de los Recursos Naturales de la Sierra Juárez (Organisation for the Defence of the Natural Resources of the Sierra Juárez)
OFI	Oxford Forestry Institute
PROCYMAF	Proyecto de Conservación y Manejo Sustentable de Recursos Forestales en México (Conservation and Sustainable Management of Forest Resources in Mexico Project)
PRODEPLAN	Programa para el Desarrollo de Plantaciones Forestales Comerciales (Programme for Development of Commercial Forestry Plantations)
PROFEPA	Procuraduría Federal de Protección al Ambiente (Office of the Attorney General for Environmental Protection)
Red MOCAF	Red Mexicana de Organizaciones Campesinas Forestales (Mexican Network of Campesino Forestry Organisations)
SCS	Scientific Certification Systems
SEMARNAP	Secretaría de Medio Ambiente, Recursos Naturales y Pesca (Ministry of Environment, Natural Resources and Fisheries)
SHCP	Secretaría de Hacienda y Crédito Público (Ministry of Finance and Public Credit)
SPFEQR	Sociedad Civil de Productores Forestales Ejidales de Quintana Roo (Society of Ejido Forestry Producers of Quintana Roo)
tequio	Voluntary collective work
TLC	Tratado de Libre Comercio en América del Norte (see NAFTA)
TRL	Tropical Rural Latinoamericana
UEAF	Unidad Económica de Aprovechamiento Forestal (Forest Production Unit)
UIEF	Unidad Industrial de Explotación Forestal (Forest Exploitation Industrial Unit)
UNOFOC	Unión Nacional de Organizaciones en Forestería Comunal (National Union of Community Forestry Organisations)
UZACHI	Unión de Comunidades Productoras Forestales Zapotecas-Chinantecas (Union of Zapotec and Chinantec Forestry Communities; referred to in the text as 'the Union')
WWF	World Wide Fund for Nature

Note on currency equivalents: Except where otherwise indicated, the May 1999 average inter-bank rate of US\$1 = 9.4 Mexican pesos is used throughout the report.

1 INTRODUCTION

Mexico has more forests under active community control than any other country in the world. The origins of community forestry can be traced to the Mexican Revolution of 1910-20. The establishment of the *ejido* sector and expansion of the indigenous community sector that followed the Revolution placed the greater part of Mexico's forest lands—up to 90% according to some estimates—under a regime of usufruct by rural communities. However, the State retained the constitutional right of ownership to all forest resources and, in the years after the second world war, exercised this right through dual policies of industrial concessions and harvesting bans. These policies succeeded in their aim of stimulating economic growth through the development of a domestic forest industry, but at the expense of rural impoverishment and widespread forest degradation. The worsening conditions in the Mexican countryside provoked a social crisis in the 1970s, which resulted in limited reforms intended to promote community forestry. Further popular pressure in the 1980s led to the ending of private concessions and significant policy changes in favour of community forestry.

Since its origins as an organised activity in the 1970s, community forestry in Mexico has provided a testing ground for many of the organisational, administrative, financial and technical issues commonly associated with community-based enterprise. Although local activists, government reformers and foreign donors have contributed to this process of development, the majority of communities with forest enterprises have received little or no outside support, relying instead on experience (and often machinery) acquired from the concession era. For communities with few productive assets other than their forests, the forest enterprise is both the engine of economic development and a vehicle for furthering social and political aspirations.

In recent years, the progress of Mexico's community forestry sector has been threatened by programmes of deregulation and market liberalisation in the rural sector. In 1992, constitutional reforms and new agrarian and forestry legislation opened community forest lands to private investment. Rapid trade liberalisation, which began with Mexico's entry into the General Agreement on Tariffs and Trade (GATT) in 1986 and continued with the North American Free Trade Agreement (NAFTA) in 1994, has opened the domestic forest products market to competing imports from America, Canada, South America and South-East Asia. The new economic environment resulting from these changes presents a threat to the community forestry sector, which, despite its genuine social and economic achievements, is incapable of competing with the more efficient and productive forest industries of Mexico's trading partners.

If community forestry is to survive these new economic challenges—and the social and environmental values it represents argue that it must survive—additional incentives and measures of support will be needed. In fact, it is possible that the very changes which have weakened the position of the community forestry sector will, in future, lend themselves to new and innovative means of strengthening community forestry. Deregulation and market

liberalisation, for example, offer scope for developing market-based instruments to promote rational forest exploitation. One such instrument which is attracting a great deal of local and international attention is certification.

Certification is a voluntary procedure which confirms that the wood in a product originated from a forest (or forests) managed in accordance with certain standards. By providing information about the origins of a traded forest product, certification attempts to link market demands for products produced to high environmental standards with producers who can meet such demands. As such, it has the potential to act as a market incentive for better forest management. For forest enterprises in Mexico, certification offers both access to, and a share in, the growing markets for certified forest products in Europe and North America.

In the same way that Mexico has been a testing ground for community forestry, it is likely to become a testing ground for community forest certification. Although it is possible that Mexican forest communities may benefit from certification, a number of issues and concerns have yet to be resolved. For example, the community forestry sector embraces a wide range of enterprises, each with significantly different environmental, social and economic characteristics. It is uncertain whether accurate and reliable certification standards—or procedures—can be developed to cover this degree of local variation. In addition, many communities view forest management not in isolation, but as part of an integrated land use strategy that includes agriculture and other productive activities. Again, it is unclear whether certification standards or procedures can be developed to recognise these integrated land use strategies. A further concern is that certification relies on market signals to influence producer behaviour, yet cannot guarantee market access or market share. The extent to which certification can be exploited for its market benefits depends almost entirely on the resources and industrial capacity of the certified enterprise. However, many Mexican community enterprises have limited production capacities and even more limited marketing capacities.

The aim of this study is to evaluate the existing experience with community forest certification in Mexico, and to assess its future prospects. The study draws on the experiences of the Union of Zapotec and Chinantec Forestry Communities (UZACHI) in the state of Oaxaca to illustrate at first hand the costs and benefits of the certification process. The Union, which was certified in September 1996, was only the second community-based forestry organisation to be certified in Mexico. In the three years since certification, the Union has encountered many of the issues and concerns currently associated with community forest certification.

The study is based on three weeks of field work in Mexico during April and May 1999, as well as the findings of a consultancy carried out for the British Department for International Development (DFID) during June and July 1998. Funding for the field work in Mexico was provided by the International Institute for Environment and Development (IIED), in support of doctoral research under the joint supervision of IIED and the Oxford Forestry Institute (OFI). The opinions and judgements expressed in this report are those of the author and do not necessarily reflect the opinions or policies of IIED or OFI.

2 BACKGROUND TO COMMUNITY FOREST ENTERPRISE IN MEXICO

2.1 Mexico's forest and social landscape

Mexico is the third largest country in Latin America after Brazil and Argentina. About 28% of the country's 197.3 million hectare land area, or 55.3 million hectares, is covered with closed temperate and tropical forests (SARH, 1994, cited by Segura, 1996). Temperate coniferous and broadleaf forests cover 31.8 million hectares, or 16% of the land area, and are distributed along the major mountain ranges (the Sierra Madre Oriental, Sierra Madre Occidental, Sierra Madre del Sur and Eje Neovolcánico), mainly in the states of Chihuahua, Durango, Michoacán, Jalisco, Guerrero and Oaxaca. Tropical forests cover 23.5 million hectares, or 12% of the land area, and occur mainly in the southern states of Campeche, Chiapas, Oaxaca, Quintana Roo and Veracruz (Segura, 1996). A further 22.2 million hectares of forest are considered degraded, usually as a result of shifting cultivation (Cairns *et al.*, 1995; SARH, 1994, cited by Segura, 1996).

Mexico's diverse climate, topography and geology, together with its location at the juncture of the holarctic and neotropical biogeographical zones, have contributed to high levels of biological diversity (Cairns *et al.*, 1995). About 10% of the world's species are found in Mexico. Some habitats, such as the humid pine-oak forests of Oaxaca and Chiapas which shelter 55 species of pine (*Pinus* spp.) and 138 species of oak (*Quercus* spp.), are the most diverse in the world (World Bank, 1995).

Since the late 1960s, the area and quality of Mexico's forests have declined rapidly, although the exact rate of loss is uncertain. Estimates of current deforestation rates range from 365,000 to 1.5 million hectares annually (Cairns *et al.*, 1995). The rate of deforestation is highest in the tropical forests of south-eastern Mexico, where it is closely linked to agricultural and livestock expansion. Deforestation rates in tropical forests have been reliably estimated at 1.9-2% annually, whereas rates in Mexico's temperate forests are much lower at 0.64-0.67% annually (Masera *et al.*, 1992, cited by Cairns *et al.*, 1995). In addition to agricultural and livestock expansion, the other main sources of deforestation are forest fires (mainly anthropogenic), timber extraction (which is a contributing factor rather than a proximate cause), oil and mineral extraction, and road construction (World Bank, 1995).

Mexico has a total population of 93.7 million (FAO, 1997). About one-quarter of the population lives in rural areas, and one-half of these people live in forested areas. During the past 20 years, the population growth rate in rural areas (2.4%) has been consistently lower than that in urban areas (4.7%) (SEMARNAP, 1995). This difference is attributable to high rates of rural-urban migration, which have exceeded 15% of the total population in major timber producing states such as Durango, Michoacán, Guerrero and Oaxaca. Rural poverty is widespread in both southern and northern Mexico, with about 18.8 million people living in conditions of moderate to extreme poverty (SEMARNAP, 1995).

The greater part of Mexico's forest lands is under communal ownership, either by *ejidos* or by indigenous communities. Estimates of the proportion of forest under communal ownership vary between 70% and 90% (Bray, 1997), although 80% is the most commonly cited figure. The remaining forest area is divided between private smallholdings (15%) and federal lands (5%) (SEMARNAP, 1995). More than 8,000 communities, the majority of which are indigenous, control forest areas ranging from 100 hectares to over 100,000 hectares (SEMARNAP, 1995; Snook, 1997). However, forestry constitutes the primary economic activity in only 5% of these communities, most of which are located in the states of Chihuahua and Durango. The remaining forest communities rely on a combination of timber extraction, agriculture, livestock production and wage labour.

Forests are an important source of market and non-market goods and services for rural and urban communities in Mexico. In terms of environmental values, forests play an increasingly important role in carbon sequestration, watershed protection, tourism and recreation, and pharmaceutical and genetic 'prospecting' (World Bank, 1995). Forests also provide a variety of subsistence and informally marketed products for rural communities, including foodstuffs, medicinal plants and seasonings, construction materials and fuelwood. Ninety percent of rural households burn fuelwood, and domestic fuelwood consumption is estimated at 37 million m³ per year (Maser, 1993, cited by World Bank, 1995).

On the basis of accessibility, quality or legal zoning status, 21 million hectares of closed forest have been identified as suitable for sustained commercial timber production, but only one-third of this area is under active management (SEMARNAP, 1995). Authorised commercial logging is concentrated in the highland pine and mixed pine-oak forests of the six main timber producing states of Chihuahua, Durango, Michoacán, Guerrero, Jalisco and Oaxaca. In 1997, the production of pine from these six states accounted for almost three-quarters of the national timber harvest of 7.7 million m³ (SEMARNAP, 1998a). In contrast, tropical species such as mahogany (*Swietenia macrophylla*) and cedar (*Cedrela odorata* and *C. mexicana*) accounted for less than 4% of the 1997 national harvest (SEMARNAP, 1998a). Official production estimates should be treated with caution, however, as illegal logging in managed areas and logging without management plans are common (World Bank, 1995).

Mexico is a producer of several commercially important non-timber forest products (NTFPs), including pine resin, plant fibres, latex (*chicle*), wax and rhizomes. According to official statistics, the total harvest of NTFPs in 1997 was 43,761 tonnes. Almost half of this total is accounted for by pine resin, which is produced mainly in the states of Michoacán and Jalisco. The harvesting of *chicle* (which is obtained from the Chicozapote tree, *Manilkara zapota*) is an important commercial activity in southern states such as Quintana Roo (Viana *et al.*, 1996).

For reasons that are discussed in greater detail in section 2.2.3, the forestry sector plays only a minor role in national economic activity. The contribution of forestry to Mexico's gross domestic product has declined steadily during the past decade and currently stands at 1.2% (SEMARNAP, 1998a). The sector's contribution to formal employment has also declined to a

current low of 182,000 jobs. At present, domestic production does not meet demand (principally for pulp and paper), resulting in net annual imports of 5.8 million m³ and a trade deficit of almost US\$1 billion (SEMARNAP, 1998a).

2.2 The history and evolution of the community forestry sector

2.2.1 Concessions and harvesting bans (1943-75)

The origins of community forestry in Mexico date back to the Mexican Revolution of 1910-20. The land distribution programme that followed the Revolution began slowly at first but gained significant momentum during the term of President Lázaro Cárdenas (1934-40). Under Cárdenas, traditional communal holdings were recognised and over 18 million hectares of land were distributed in the form of *ejidos*, including 4 million hectares of forest (Bray and Wexler, 1996). The land distribution programme continued throughout the post-war years, but was weakened by a lack of political support and did not regain its former vigour until the term of President Luis Echeverría (1970-76). Under Echeverría, the rate of land distribution was again increased, government credit was instituted for the agricultural sector, and limited forestry reforms were introduced to allow a greater role for communities in managing their forest resources (see section 2.2.2).

The pro-community forestry reforms made during the term of Echeverría followed several decades of policies oriented towards the modernisation and expansion of the industrial forestry sector. Concern with the sector had been prompted by a shortage in pulp production during the second world war, and reflected Mexico's adoption of an import-substitution development model in the post-war period (Bray and Wexler, 1996). The State-sponsored programme of industrialisation in forestry had four main elements (Zabin, 1995): 1. Direct public investment in State enterprises, for example pulp and paper mills, sawmills and plywood factories; 2. Public investment in infrastructure (especially roads) and technical assistance; 3. Guaranteed raw material supplies through concessions; and 4. Protected domestic markets secured through tariffs and quotas on forest products imports and complete State control of the paper products industry.

Construction of the policy and legislative framework for sectoral modernisation and development began in earnest with the forestry law of 1943. This law created Forest Exploitation Industrial Units (UIEFs), which were large blocks of forest awarded as 25-year exclusive concessions to soliciting private enterprises¹ (Abardía and Solano, 1995). Twelve UIEFs were eventually established between 1945 and 1972, including two in the southern state of Oaxaca (see case study of UZACHI). The law on UIEFs restricted the right of communities to carry out harvesting or sell timber to anyone other than the concessionaire, in

¹ The Mexican Constitution establishes that all natural resources, including forests, are property of the State (Government of Mexico, 1992a, Article 27). The government, therefore, was able to award private concessions on forest lands given in usufruct to *ejidos* and indigenous communities (Snook, 1997).

return for which they would receive a stumpage fee negotiated through an annual timber contract.² Concessionaires were required to support public works and services, although in practice these were often neglected, or financed by the federal government (Jardel, 1990; Abardía and Solano, 1995).

In parallel with the policies of industrialisation, conservationist policies led to the establishment of protected areas and harvesting bans in 17 states, including forest-rich states such as Michoacán and Veracruz (Bray and Wexler, 1996; Merino, 1997a). Many of the harvesting bans were total—they covered all types of extraction and severely limited the economic opportunities available to rural forest-owning communities. This in turn led to illegal harvesting of forest resources, which largely defeated the aim of the bans to curtail deforestation (Bray and Wexler, 1996). When the creation of a UIEF conflicted with an existing harvesting ban—as it did in Oaxaca in 1956—the ban was specially lifted to allow forest exploitation within the UIEF (Jardel, 1990; Lara, 1990).

During the 1950s and 1960s, the area under UIEFs expanded and the government began to assume an increasingly more active role in the wood and paper products industry (Bray and Wexler, 1996). Federal investment in private forest enterprises increased and some UIEFs were transferred to full public ownership. At the same time, the concerns and demands of forest communities were forced even further into the background. A new forestry law in 1960 closed access to forest resources to those without the technical and financial capacity to harvest them (Chapela, 1997). This meant, in effect, that forests which were not concessioned could only be harvested by private enterprises.

2.2.2 *Grassroots mobilisation and community forestry reforms (1975-86)*

In the 1970s, the social unrest provoked by rural neglect and under-development reached critical levels and, in the state of Guerrero, led to open insurrection. As already noted, this crisis prompted a number of government reforms, including changes in forestry policy aimed at giving communities a greater role in managing their forests. These changes originated with a small group of government reformers in the forest service of the agriculture ministry (Bray and Wexler, 1996; Bray, 1997). Guided by a philosophy of social and economic justice known as 'socio-production', this group began an initiative to train communities in the states of Tlaxcala, Puebla and Veracruz (where there were no concessions) to manage their forest resources. At the same time, the group began work to overturn the many harvesting bans that were still in force (Bray and Wexler, 1996). The efforts of the group led to the reforms of the 1975 forestry law, which contained a special section on *ejidos* and communities and formally initiated the policy of socio-production (Chapela, 1997).

² Only 30% of the stumpage fee agreed to in harvesting contracts was paid directly to communities. The remainder was deposited in a government trust fund known as the National Fund for Community Development (FONAFE), and used to finance community development projects (Halhead, 1984, cited by Winder, 1992).

Despite the legislative gains made by communities in 1975, the 1970s heralded the beginning of a new phase in industrial forest exploitation with the formation of large parastatal timber enterprises in several important timber-producing states. Some of these enterprises, such as Forestal Vicente Guerrero (FOVIGRO) in Guerrero, served the additional purpose of rural pacification by introducing a strong military presence to suppress insurgencies, and by supporting public works and services (Wexler, 1994, cited by Zabin, 1995; Bray and Wexler, 1996; Bustamante, 1996).

The social discord generated by private concessions and State control of timber production continued to grow throughout the 1970s and into the early 1980s. Although the concessions brought certain benefits for communities, such as employment, infrastructural development and, in some regions, the accelerated legalisation of land titles,³ many companies exploited the mostly non-unionised community work force and used bribery, violence and other divisive tactics to force communities to agree to cheap, one-sided harvesting contracts (Jardel, 1990; Abardía and Solano, 1995). Furthermore, the standardised management practices used within every concession caused significant forest degradation; a legacy that continues to hinder many community forest enterprises (see Box 1 below).

Many forest communities responded to the growing environmental and economic threat posed by concessions by organising themselves and conducting vigorous campaigns of protest. By the beginning of the 1980s, the efforts to organise communities that had begun in Puebla, Veracruz and elsewhere had spread to important timber producing zones such as Oaxaca and Chiapas (Bray, 1997). In these areas, informal coalitions of political activists, intellectuals, sympathetic government reformers and local communities worked together to defend forest resources and lobby for changes in policy and legislation.

In the Sierra Juárez mountains of Oaxaca, there was already a history of protest against the concession holder, Fábricas de Papel Tuxtepec (FAPATUX). The community of San Pablo Macuiltianguis had started a contract strike against FAPATUX in 1968, which spread to 14 communities and continued intermittently for five years (Bray, 1991; Abardía and Solano, 1995). This protest and other confrontations led to the formation in 1980 of a 13-member community organisation dedicated to overturning FAPATUX's concession (Bray, 1991). With support from a group of activists and rural development workers, the organisation was able to mount a successful legal challenge against the extension of FAPATUX's concession in 1982. By 1984, extensions to both of the concessions in Oaxaca had been nullified by a federal judge (Abardía and Solano, 1995).

The struggles of communities to gain control over their forest resources culminated in 1986 with the passing of a new forestry law that prohibited forest concessions and made it possible for communities to establish their own forest enterprises (Wexler and Bray, 1996; Merino and Madrid, 1997). The new law also began the transfer of forestry technical services to local

³ The primary aim of titling was to reduce land use conflicts and thus facilitate the creation of a concession (Jardel, 1990).

communities,⁴ and introduced new requirements for more integrated and environmentally-sensitive management plans (Alatorre, 1990; Bray and Wexler, 1996). Many communities took advantage of the new policy and legislative environment to consolidate or establish their own forest enterprises. In 1980, only a small fraction of communities had forest enterprises; by 1992 over 60% of communities were carrying out harvesting operations, and some of the more advanced communities had received government concessions to manage their own technical services (Madrid, 1993; Zabin, 1995).

Box 1. MMOM and MDS: The development of appropriate silvicultural systems

For much of the post-war period, Mexico's pine and mixed pine-oak forests were exploited under a low-intensity selection system known as the Mexican Method of Harvesting (MMOM). The Mexican Method limited harvesting intensity to 35-50% of the volume of commercial timber species and specified a minimum diameter limit of 45 cm dbh (diameter at breast height) (Snook and Negreros, 1987). In the mixed pine-oak forests of Oaxaca, the application of this system implied the selective extraction of less than 20% of the total timber volume (FAPATUX, 1980, cited by Snook and Negreros, 1987).

The Mexican Method was designed to protect forests and sustain yields, but was based on two false assumptions (Snook, 1997): 1. Temperate forest stands have a mix of age classes; and 2. Pines are able to regenerate in the shaded conditions of the forest understorey. In fact, pines are light-demanding species and regenerate best in the open conditions that follow a major disturbance such as fire or cultivation. One of the consequences of regular disturbance is that pines occur naturally in extensive, even-aged stands.

In practice, the application of the Mexican Method left the forest canopy substantially intact, but led to the removal of the largest and best-formed trees and favoured the regeneration of shade-tolerant broadleaf species at the expense of the more valuable pines (Snook and Negreros, 1987; Snook, 1997). Instead of sustaining yield, the system progressively reduced the productive potential of Mexico's pine forests. In Oaxaca, the use of the Mexican Method resulted in an increase of 50% in the area of temperate broadleaf forest and reduced the productivity of some community pine forests by 13% between 1974 and 1993 (Lara, 1990; Chapela and Lara, 1993).

At the end of the 1970s, a more intensive system of forest production known as the Method of Silvicultural Development (MDS) was introduced (Snook, 1997). This is based on an even-aged, uniform system and includes both periodic thinnings and the retention of seed trees in harvest areas. The system thus mimics the effects of fire, and presumes to favour pine regeneration. The use of MDS to restore forests degraded by the Mexican Method could increase sustained yields by more than 100% (Snook, 1997). However, the adoption of the system has been hampered by the need to harvest oaks and other broadleaf species in order to create the open conditions required for pine regeneration. Domestic markets for broadleaf species are limited and cannot support the extra production costs of the new system (Snook and Negreros, 1987). This issue is explored further in the case study of UZACHI.

⁴ Technical services include the preparation of management plans, setting of annual harvest levels and marking of crop trees. Until 1986, these services were provided exclusively by the government through regional agencies of professional foresters. The new law allowed communities to apply for a government concession to manage their own technical services, which enabled them to avoid the high costs and delays often associated with government service providers (Wexler and Bray, 1996).

2.2.3 *New challenges: deregulation and trade liberalisation (1986-Present)*

The policy changes of 1986 marked both a watershed in community forestry in Mexico and the end of a decade of active reform and institutional support (Merino, 1997a). These efforts would allow an active community forestry sector to emerge, but they were soon to be overshadowed by more radical changes in the rural sector. By 1986, the Mexican economy was already undergoing major structural change as a result of the stabilisation policies that followed the debt crisis of the early 1980s (Green, 1995). As part of this process, Mexico signed the General Agreement on Tariffs and Trade (GATT) in 1986 and began to reduce tariffs and other trade restrictions that provided effective protection rates of up to 50% on products such as pulp and plywood (Zabin, 1995).

During the term of President Carlos Salinas (1988-94), the liberalisation of trade and investment was accelerated and, in 1991, formal negotiations began for a trilateral North American Free Trade Agreement involving Mexico, America and Canada (Coote, 1995). In anticipation of the terms of this agreement, the Mexican government embarked on further reforms designed to open community forest lands to private investment and create a plantation sector within the forest industry (Wexler and Bray, 1996; Silva, 1997).

In 1992, new forestry and agrarian laws were passed, the latter accompanying constitutional reforms that ended Mexico's programme of land distribution and allowed the division and sale of common agricultural and urban lands (Diego *et al.*, 1998). Under the new agrarian law, communities cannot parcel or sell their forest lands, but they can transfer them to the control of private enterprises. The size of any individual property under private control cannot exceed 800 hectares, although enterprises may amalgamate separate properties up to a limit of 20,000 hectares (Government of Mexico, 1992b, Articles 119 & 129). The new agrarian law also allows communities to form joint ventures with private enterprises, the aim of which is to attract capital, technology and marketing contracts to the forestry sector (Wexler and Bray, 1996).

The 1992 forestry law was significant not only because of its focus on forest plantation development,⁵ but also because it substantially reduced the regulatory role of government. The law removed many of the excessive controls on timber harvesting, processing and transport that had encouraged bureaucracy and corruption. Government patrols which check the authorisation of timber trucks, for example, have been virtually eliminated (Jaffee, 1997). The most important feature of the law, however, was the complete privatisation of forestry technical services (Bray and Wexler, 1996). The law ended the concessions held by regional

⁵ In addition to the constitutional and agrarian reforms of 1992 (which were intended in part to provide a tenurial basis for private plantations), the new forestry law drew on Chilean forest policy to create a framework for the development of large-scale industrial plantations (De Ita, 1997; Silva, 1997). One of the products of the law is the Programme for Development of Commercial Forestry Plantations (PRODEPLAN), a federal programme of subsidies designed to support the establishment of 875,000 hectares of plantations over a 25-year period (SEMARNAP, 1997). This programme offers a number of cost-sharing and tax incentives (see section 5.2.3).

service agencies and gave forest enterprises the freedom to contract with any licensed service provider (Government of Mexico, 1992c, Article 23).

Despite their seemingly radical nature, the 1992 reforms have had a limited impact on the community forest sector. Communities remain wary of the private sector after the experiences of the concession era and few have either formed joint ventures or transferred forest lands to private partnerships. Significant social, environmental and economic risks are also associated with joint ventures: although they can be extremely profitable for both parties, they depend on increased rates of logging and require communities to yield some control of enterprise management (Wexler and Bray, 1996). A joint venture between the Union of Ejidos Hermenegildo Galeana in Guerrero and the American company Boise Cascade ended in 1997 after an apparent failure to maintain a consistent wood supply (Boise Cascade, 1998). However, several communities are now establishing plantations with external investment, for example El Balcón in Guerrero (Macyshyn-Rasor, 1998, cited by Betters and Aguirre-Bravo, 1999).

The deregulation of the forestry sector brought about by the 1992 forestry law has had both positive and negative consequences for community forestry. Corruption and bureaucratic delays in approving management plans have been reduced, making it easier for communities to manage their forests. However, the same deregulation that has helped serious producers has also made it easier to carry out illegal logging (Richards *et al.*, 1996). A significant increase in illegal timber cargoes in central Michoacán was linked directly to the introduction of the new forestry law (Cuna-Avila *et al.*, 1994, cited by Jaffee, 1997). Observers have also noted that competition for contracts between technical service providers has caused a decline in the quality of services and attendant increases in forest degradation (Merino and Madrid, 1997). Concerns such as these brought amendments to the forestry law in 1997 intended to strengthen controls on the movement of timber and the quality of forestry technical services.

The most immediate impact of recent economic reforms on community forestry has resulted from NAFTA, which came into effect on 1 January 1994. This agreement created the largest free trade zone in the world by the gradual elimination of tariff and non-tariff barriers against the movement of goods, services and capital over a period of 10-15 years (Coote, 1995). At the time that NAFTA was negotiated, its possible effects on Mexican forests and forestry were uncertain. It was thought that the agreement might stimulate the development of the citrus fruit and livestock industries, which could increase pressure to clear forest lands for agricultural uses (Lyke, 1993). With respect to trade in forest products, the agreement was expected to benefit American exporters disproportionately because the Mexican market had been heavily protected in the past,⁶ whereas America had virtually no barriers to Mexican imports (Lyke, 1993). Faced with strong price competition from American and Canadian imports, timber production activities in Mexico were forecasted to decline substantially (World Bank, 1995).

⁶ Mexico's tariffs prior to NAFTA were 10% for logs and sawnwood, 15% for particle board, 18% for plywood and 1% for pulp and paper (Zabin, 1995).

NAFTA had an immediate and dramatic impact on Mexico's forest products market. Domestic timber production declined while imports, with more consistent dimensions and at prices as much as 35-40% lower, rose steeply. The drop in demand for domestic production and resulting drop in market prices severely affected forest producers, particularly in northern and central Mexico. The community forest enterprise of Nuevo San Juan Parangaricutiro in Michoacán—one of Mexico's largest—was forced to cut its work force from 850 to fewer than 650, temporarily reduce pay, increase work rates and embark on an extensive programme of plant modernisation (Jaffee, 1997). In southern Mexico, the effects of the market opening were mitigated by higher transport costs (Zabin, 1995).

To a large extent, the negative impacts of NAFTA were offset by Mexico's economic crisis of 1994-95 and associated currency devaluation. It now appears likely that the devaluation of the peso will have a greater impact than NAFTA on trade relations with America by altering the relative pricing structure for forest products (Lyke, 1998). The weaker peso should also redress other trade imbalances, for example in southern states such as Quintana Roo where competition from cheap Guatemalan and Belizean mahogany imports has contributed to a decline in production (Zabin, 1995).

For all its negative impact, NAFTA has highlighted important weaknesses in Mexico's community forestry sector. Firstly, production and transport costs are high; the latter account for up to 70% of total costs in some areas (Madrid, 1993; Wilhoit and Hernandez, 1997; USDA/FAS, 1998). Secondly, the sector's industrial base suffers from over-capacity and obsolescence (Merino, 1997a). The historical existence of a protected market removed the need for communities to make regular investments in modern production technologies.⁷ In addition, many communities invested in large sawmills as symbols of power and prestige, not as productive assets with a sound economic rationale (Alatorre, 1992; Merino, 1997a). Thirdly, communities lack business development or marketing strategies, and make few efforts to consolidate or expand their sales channels (Alatorre, 1990; Madrid, 1993). Fourthly, a lack of cooperation between communities and the private sector reduces efficiency and further raises costs (Zabin, 1995).

Many of these problems can be traced to a lack of technical or administrative expertise within communities, or internal organisational problems. According to one estimate, 96% of forest communities have either been unable to consolidate their internal organisation or have serious internal conflicts (Madrid, 1993). The lack of investment in production or marketing also reflects ambivalence in community attitudes towards forest enterprise. Forestry is valued for the employment and revenues that it generates, but few communities reinvest more than a fraction of their forestry income in creating jobs or increasing sales.⁸ A natural aversion to risk

⁷ Note that this argument also applies to the industrial forestry sector.

⁸ Of course, there are exceptions to this rule. For example, the community of Nuevo San Juan Parangaricutiro in Michoacán reinvests all of its profits in its forest enterprise, and the community of Rosario de Xico in Veracruz has made job creation the main objective of its forest enterprise (Sánchez Pego, 1995; Merino and Alatorre, 1997).

also means that communities are unwilling to forgo current income or incur bank debt in order to finance industrial improvements (Alatorre, 1990; Garcia *et al.*, 1994).

If community forest enterprises are to remain competitive in the new economic environment created by market liberalisation, they will have to accept lower profits or seek support to increase their efficiency (Zabin, 1995; Bray and Wexler, 1996). Some support may be expected from government forestry programmes, although these are limited by the restrictions on public spending introduced under NAFTA (Chapela, 1997; Jaffee, 1997). In the long-term, the private sector is likely to become an important source of capital and expertise for modernisation and recovery, through joint ventures and other partnerships (Zabin, 1995).

Communities will require support to improve their timber marketing efforts, through improved market information services, standardised grading systems, product development and so on. Scope may exist for diversifying forest enterprises, for example through the harvest of a wider range of species (Alatorre, 1992; Madrid, 1993), or through the commercialisation of environmental services such as watershed protection and carbon sequestration. Lastly, it is possible that new market-based instruments such as certification could enhance commercial opportunities and provide greater market security for some of Mexico's more advanced community enterprises (Cabarle *et al.*, 1997). The following section deals with this option in greater detail.

3 CERTIFICATION AND COMMUNITY FOREST ENTERPRISE IN MEXICO

3.1 Standards, institutions and procedures

In one sense, community forest certification could be said to have started in Mexico. In 1991, five members of the Society of Ejido Forestry Producers of Quintana Roo (SPFEQR) were jointly certified by the Smart Wood programme of the Rainforest Alliance and the Green Cross programme of Scientific Certification Systems (SCS) (Rainforest Alliance, 1998a). These five communities were the first to be certified anywhere in the world. Their status as certification pioneers is consistent with the progressive nature of SPFEQR, which was established under a ground-breaking programme of community forestry known as the Pilot Forestry Plan (Richards, 1991; Zabin and Taylor, 1997).

Apart from the experiences of certified community enterprises (see further discussion in section 3.2), certification has also made substantial progress at the institutional level in Mexico. One of the prime movers of certification has been the Mexican Council for Sustainable Forestry (CCMSS). This is a national network of NGOs, launched in 1994 to promote and foster sustainable forest management and certification. CCMSS has carried out a great deal of promotional work for certification in Mexico, including a series of case studies aimed at assessing the relevance and applicability of FSC's global principles and criteria to conditions in Mexican forest communities (see Merino, 1997b).

CCMSS has also been building its own internal capacity for certification. A formal collaborative agreement was signed with Smart Wood in 1996, which led to CCMSS becoming a member of Smart Wood's Latin American certification network. As a network member, CCMSS has been undertaking certification audits in Mexico (and elsewhere in Latin America) on behalf of Smart Wood. With the exception of the communities certified by SCS in Quintana Roo in 1991, all certification assessments in Mexico have been carried out by CCMSS and Smart Wood. However, CCMSS has no plans to develop an independent certification programme, owing to the procedural demands of accreditation by the Forest Stewardship Council (FSC) and the limited market for certification services in Mexico (S. Madrid, interview, April 1999).⁹

CCMSS is a key member of Mexico's national FSC certification initiative, which has made rapid progress since its inception in 1996. The Mexican initiative formed an interim national working group and began a national consultation process to define national and regional certification standards based on FSC's global principles and criteria. Five main forestry regions have been identified for the purposes of standards development: the Yucatán Peninsula, the Sierra Madre del Sur, the Eje Neovolcánico, the Gulf and the Sierra Madre Occidental (FSC, 1999). Each of these regions is defined by a set of broadly similar physical and biological factors, and forest production issues (Chapela, 1998a).

⁹ It is possible that another Mexican environmental organisation, Tropical Rural Latinoamericana (TRL), will eventually seek accreditation as an independent certification body.

Stakeholders involved in the consultation process have reached basic agreement on issues such as land tenure, indigenous peoples' rights, environmental protection and monitoring systems. Other issues such as forest plantations and NTFPs have proved more difficult and are being addressed by separate technical working groups.¹⁰ In April 1999, the Mexican initiative held a founding assembly to formally constitute the interim national working group. The resulting organisation, which has been named the Society for Sustainable Forest Management, or CERTIFOR, will become the institutional focus for standards development and promotion in Mexico once it has been endorsed by FSC (DFID, 1999).

In general, certification has received wide support within Mexico. The majority of community forest stakeholders have expressed a strong preference for a system based on FSC's principles and criteria, apparently on grounds of environmental and market credibility (DFID, 1999). Two of Mexico's largest community organisations, the National Union of Community Forestry Organisations (UNOFOC) and the Mexican Network of Campesino Forestry Organisations (Red MOCFA), are both actively promoting certification to their members. The further advanced of the two is UNOFOC, which represents 54 first and second-order producer organisations throughout Mexico. UNOFOC is currently subsidising the costs of certification for selected member enterprises in Durango, with support from the North American Fund for Environmental Cooperation (NAFEC) (S. Madrid, interview, April 1999). UNOFOC has also established regional marketing intermediaries (known as *promotoras comerciales*) in the north and south-east of Mexico to provide marketing contacts and information, and train producers in marketing techniques (Zabin and Taylor, 1997).

The response to certification from Mexico's industrial forest sector has been muted. Several forest products companies with a reputation for innovation (and a high degree of market exposure) have participated in the national certification initiative. However, the larger pulp and paper producers have yet to encounter significant consumer demand and the National Chamber of Pulp and Paper Industries has adopted a 'wait-and-see' policy towards certification (J. Pontones, interview, July 1998). The lack of vertical integration in the private sector means that forest management certification will not be a priority for private enterprises in the short to medium term, but chain of custody certification may become important if market demand forces manufacturers to seek certified suppliers.

The Mexican government is a strong supporter of certification in general, and FSC in particular. It sees certification as both a complement to conventional regulation in the forest sector and a promising tool of marketing for the Mexican forest industry (DFID, 1999). It was on the invitation of Mexico's social development ministry in 1992 that FSC established its international headquarters in Oaxaca (Upton and Bass, 1995). Subsequent support from the

¹⁰ Forest plantations, in particular, are a source of controversy and debate in Mexico. Despite their ability to contribute to raw material supplies, they are opposed by environmental groups on the grounds that intensive plantation management contaminates soil and water resources, adversely affects native wildlife populations, displaces rural inhabitants and their agricultural activities to marginal, often forested, land, fails to provide the expected industrial or employment benefits, and, crucially, diverts scarce government resources from natural forest management and protection (Paré, 1997).

Mexican environment ministry and the state government of Oaxaca has included donations to the costs of FSC General Assemblies and other meetings (Dixon, 1996).

Government support for certification has also taken more concrete forms, for example through policy making and implementation. Mexico's current five-year programme for forest and soils, under the heading of forestry regulation, recognises the growing international demand for sustainably produced forest products and states that:

...Mechanisms will be designed and implemented to certify the sustainable origin of [forest] products...forest owners will be encouraged to adopt national and international mechanisms of certification for their products (SEMARNAP, 1995, author's translation).

Funding is available for communities to carry out certified market studies and related technical studies under the World Bank's PROCYMAF (Conservation and Sustainable Management of Forest Resources in Mexico) project. The aim of this project is to support an ongoing federal programme of support for natural forest management that has suffered from budget cuts. To date, the project has confined its activities to the community forestry sector in Oaxaca (see the case study of UZACHI).

3.2 Early experiences with certification

Until recently, there were only two certified community organisations in Mexico: SPFEQR in Quintana Roo (originally five communities), and UZACHI in Oaxaca (four communities). The number of certified communities within SPFEQR has fluctuated and currently stands at four (Rainforest Alliance, 1998a). In the past two years, however, the number of certified communities in Mexico has risen sharply. In April 1999, 27 communities were either certified or at the application and evaluation stages (S. Madrid, interview, April 1999). These communities are spread across five states: Durango, Jalisco, Michoacán, Oaxaca and Quintana Roo. At present, certification-related activity is greatest in Durango, where UNOFOC and the Mexican subsidiary of an American forest products company have been concentrating their promotional efforts.

3.2.1 Durango

The state of Durango is a key player in both Mexico's forest products economy and the community forestry sector. Durango is the largest timber producer in Mexico, and timber harvesting and wood processing are vital to the state's economy. Most of the timber production in Durango is from community lands. About 80% of the harvesting permits granted annually in the state are for *ejidos* and indigenous communities (Environmental Law Institute, 1998). Producers in Durango have been affected by price competition from American imports,

particularly pallets and other wood packing products, but the recent devaluation of the peso has increased domestic (and overseas) demand for local production (USDA/FAS, 1999).

In the area of certification, Durango is notable for a high degree of cooperation between the private industrial and community forestry sectors. The first evaluations in Durango were organised and financed by Noram, the Mexican subsidiary of a forest products company based in Washington, D.C. Noram's main product is charcoal, which it produces from oak timber harvested by a group of about 10 community enterprises. These enterprises have historically concentrated on pine production, and have diversified into oak production only recently because of Noram's commercial interest (Rainforest Alliance, 1998b). The communities do not produce charcoal themselves, but may do so in the future as this would reduce Noram's transport costs and increase the returns to each community.

At present, about half of Noram's charcoal production is exported to the United Kingdom, where it is distributed by Rectella International Ltd to the Sainsbury's chain of supermarkets and other outlets (C. Ludvik, interview, July 1998). Demand from Sainsbury's for FSC-labelled charcoal prompted Noram and Rectella to share the costs of certification for five of their community suppliers in 1997. Three of these communities were eventually certified, although one certificate has recently been suspended (S. Madrid, interview, April 1999). Certification does not provide any financial benefit (Noram neither receives a premium for certified charcoal nor pays one for certified oak), but it has maintained market share and guaranteed sales for Noram's community suppliers. Oak production is much less profitable than pine production, but charcoal can be produced throughout the year and is a more stable source of income than the annual pine harvest. The costs of planning and implementing certifiable management practices have fallen on the foresters who are contracted to provide technical services to the certified communities. These foresters wish to raise their fees to cover the increased cost of services, but the communities have so far resisted any price rises (J. Garcia, interview, July 1998).

Noram is currently seeking to expand its base of certified suppliers, which would enable the company to realise its main goal of entering the American charcoal market. To this end, the company has been discussing certification with several other Durango communities, including the *ejido* Pueblo Nuevo, which, at 250,000 hectares, is one of Mexico's largest forest communities (C. Ludvik, personal communication, February 1999). Negotiations have also been started with UZACHI in Oaxaca (see case study). The potential for expanding certified charcoal production from Durango is substantial: Noram currently buys 25,000m³ of oak per year, but the company's new charcoal screening and packing plant has the capacity to handle up to 100,000m³ per year (C. Ludvik, interview, July 1998).

As already noted, the communities that supply Noram produce mainly pine; up to 85% of the total timber harvest in some cases (Rainforest Alliance, 1998b). In Durango as a whole, pine production far outweighs that of any other species (SEMARNAP, 1998a). Thus, if certification is to have more than a localised impact, markets must be developed for certified pine

products. This is the approach that UNOFOC's *promotora comercial* for northern Mexico (who is based in Durango) has adopted. The *promotora* has been working to establish marketing contacts between communities and buyers of certified pine timber, principally in America. UNOFOC has also set up a timber yard in Durango to centralise the storage and distribution of timber. This will create economies of scale which will reduce the overall costs of export marketing. At present, UNOFOC is financing the costs of certification for about six communities in Durango, in the hope of creating some early commercial successes and generating interest across a wider cross-section of community producers. Red MOCAF is also currently working with its member communities in Durango, in particular a cooperative of three *ejidos* at San Dimas which has received advance orders for certified pine timber at premiums reportedly up to 15% (G. Chapela, interview, April 1999).

3.2.2 Quintana Roo

Apart from UZACHI in Oaxaca (which is dealt with in section 4), only SPFEQR in Quintana Roo has had long-term experience with certification. Five of the 10 members of SPFEQR were certified at the beginning of the 1990s. Three of these communities were subsequently downgraded to 'pre-certified' status by Smart Wood on the recommendation of SPFEQR.¹¹ Two more communities have since been certified by Smart Wood (Rainforest Alliance, 1998a).

The history and development of SPFEQR and, more generally, community forest management in Quintana Roo have been well documented (see for example Snook, 1991; Richards, 1991; Bray *et al.*, 1993; Richards, 1993; Zabin and Taylor, 1997). To summarise, the process began in 1983 when a parastatal concession of 540,000 hectares in the south of the state was returned to local communities. With support from the state government of Quintana Roo and foreign donors, these communities defined permanent forest areas and began sustained-yield management, principally of mahogany (and, to a lesser extent, cedar). Forestry profits were used to finance SPFEQR, which was established in 1986 to provide technical services to 10 communities and develop community forest policy and marketing strategies (Richards, 1993). In the past decade, three more production societies have been established; together with SPFEQR they service 47 communities and one smallholders' association (Zabin and Taylor, 1997).

In the case of SPFEQR, certification was pursued primarily for commercial reasons. Mahogany is a light-demanding species and large openings must be made in the forest canopy if it is to regenerate successfully. In the diverse tropical forests of Quintana Roo, this practice yields quantities of lesser-known species that have only limited local markets.¹²

¹¹ These three communities must comply with certain preconditions before they can be re-certified. Smart Wood's public summary report for SPFEQR does not specify the preconditions, but does note that the communities need to adopt 'control mechanisms and management strategies' to improve daily operations (Rainforest Alliance, 1998a).

¹² Note the parallels with the MDS silvicultural system discussed in Box 1.

Certification was seen as a means of promoting these lesser-known species in overseas markets such as America. There was less interest in exporting certified mahogany, as this species has a strong local market and, at the time of certification in 1991, Smart Wood was not certifying mahogany for export (Rainforest Alliance, 1992).

Despite high expectations, the commercial success of certification in the past eight years has been limited. Local markets continue to provide the bulk of sales, and only three communities have exported timber under a certified label (Maynard and Robinson, 1998). Furthermore, the expected markets for lesser-known species have failed to materialise. Some secondary species have been exported to America, Canada and Germany, but in recent years only mahogany has been exported under a certified label (Maynard and Robinson, 1998). Because of internal organisational and economic weaknesses, the communities have had difficulties in meeting quality standards, delivery schedules and other requirements of foreign buyers. A local flooring manufacturer which shared the costs of certification, and has chain-of-custody certification from Smart Wood, has been compelled by community business practices to seek alternative sources of certified timber in Brazil (Zabin and Taylor, 1997).

There is also a question mark over SPFEQR's ability to finance the costs of the certification process. The direct costs of an evaluation of all four communities are estimated at US\$13,000 (Maynard and Robinson, 1998). Incremental costs of US\$8 per hectare have also been reported for implementing certifiable management practices (Flachsenberg, 1996). To date, these costs have been almost entirely subsidised by foreign donors, buyers and other organisations. However, they will increasingly fall on the communities themselves when (and if) market demand for lesser-known species grows.

The impact of certification in other areas of forest management has also been limited. Despite its focus on transparency and accountability, certification has failed to counter inefficiency and corruption in forest management. These have both been rising as the administrative and financial demands of forest enterprise gradually outstrip the capacity of traditional agrarian authorities such as the *ejidal* commission (*comisariado*). In response to these pressures, three of the certified communities have divided their authorised timber volumes between internal work groups. The practice of working in groups, as opposed to a single communal enterprise, has allowed tighter control over costs, although at the expense of centralised control over forest exploitation. Nevertheless, it has increased transparency and reduced corruption, which, according to Maynard and Robinson (1998), is something that certification has been unable to achieve.

For the communities of SPFEQR, perhaps the main impact of certification has been in the area of external relations. The project has always been well known and internationally respected for its pioneering work in community tropical forest management. Certification has added an extra 'cachet' to this already strong image, which has increased the opportunities for travel, training and funding available to community members and SPFEQR foresters. The prestige conferred by certification has also favourably influenced relations with government

institutions in the rural sector. Lastly, certification is seen as a way of defending forest-based economic development against continuing opposition from urban environmental groups (Maynard and Robinson, 1998).

3.3 Emerging issues and concerns

As a result of the experience gained with certification at the national level (through standards development) and at the local level (through research and the experience of certified enterprises), a number of issues and concerns regarding community forest certification in Mexico can be identified. Most of these are generic: they apply not only to Mexico but also to community forest certification—particularly in developing countries—in general. Some are more specific to Mexican conditions.

3.3.1 Costs and subsidies

Among the generic concerns can be identified the direct and indirect costs of certification. Until now, cost has not been a significant factor because of the amount of external funding available specifically for certification. Almost all of the certified community enterprises in Mexico have received financial support for meeting certification standards or organising evaluations. A wide range of foreign donors, producer organisations, timber buyers and even certifiers has been involved in financing the certification process. Only some of the larger community enterprises, such as Pueblos Mancomunados in Oaxaca, have actually paid for certification themselves (I. Santiago, interview, May 1998).

In future, cost will become an increasingly important issue for two main reasons. Firstly, the ratio of certified enterprises to external funding is likely to increase. Secondly, the marginal costs of implementing certification standards will rise across the community sector as a whole, as the pool of natural certification candidates—the 'good' producers—shrinks and the focus of attention shifts to the poorer performers. The possible scale of the increase is uncertain, however, because detailed cost estimates for certification are not widely available. Various measures could be employed to keep costs down, including the dissemination of appropriate technical and institutional knowledge, group or resource manager certification schemes that generate financial and technical economies, and the development of a competitive market for certification services. The feasibility of such measures is discussed further in section 5.

Whatever the future costs of certification, there is a risk that current subsidies might induce dependence instead of stimulating investment and triggering cumulative change among producers. Indeed, there is already anecdotal evidence that community forest enterprises in Mexico are waiting until they have secured donor support before embarking on certification. The problem with such behaviour is not only that it runs counter to the 'no-subsidy' principle underlying market-based instruments such as certification (Eckersley, 1995). It also is creating

an association between donor support and certification that could eventually lead to one becoming conditional upon the other.

3.3.2 *Development of certified markets*

The evidence from international certified markets suggests that companies are not receiving consistent price premiums, but that certification is helping to maintain or improve market share (UN/ECE, 1998). Of course, the latter benefit will act as an incentive only if the company (or industry) has lost market share to competitors. In Mexico, the opposite has happened in the past three years. The combination of a weak peso and improving economic conditions has significantly increased both output and demand for Mexican timber. In 1997, the total value of wood exports to America (Mexico's principal trading partner) was US\$439 million, an increase of 12% over 1996 (USDA/FAS, 1998). This positive trend is expected to continue into 1999, as the Mexican forest industry capitalises on the competitiveness of the peso to increase exports of pine sawnwood, mouldings, furniture and other products (USDA/FAS, 1999).

Apart from the growing strength of Mexico's export industry, the slow speed with which certified markets are developing in America provides cause for concern. Surveys have indicated that the American market for certified products is still small and fragmented, and mostly concentrated in the West Coast region (Carter and Merry, 1998; Stevens *et al.*, 1998). The market is growing, but as yet there has been insufficient demand to prompt any mainstream American forest industry company to embark on certification (Baharuddin and Simula, 1998). It is possible that alternative markets for Mexican certified products could be developed in western Europe—where certified markets are larger—even though the trade in forest products between Mexico and Europe has historically been negligible. The size of the certified products market in Europe (as represented by buyer's groups) has been estimated at 9 million m³ of roundwood equivalents (BOKU Wien *et al.*, 1998).

Even if community producers were able to afford certification, and the market for certified products was to grow rapidly, the problem of finding a route to this market would remain. As previously discussed, marketing is one of the main weaknesses of the community forestry sector in Mexico. Most enterprises (including those that are already exporting their produce) will need to make costly investments in production, sales and distribution systems if they are to identify and serve certified markets. Few enterprises in Mexico can afford these investments themselves. Most will depend on marketing intermediaries, for example UNOFOC's *promotora comercial*, private enterprises such as Noram in Durango, or trade-oriented NGOs such as the Mexican Association for Popular Art and Culture (AMACUP).¹³ Such dependence could, in some cases, lead to the private investment and partnerships

¹³ AMACUP is currently working with certified communities in Quintana Roo to develop a line of products for the home decoration and gift markets in America and Mexico. The organisation recently obtained chain of custody certification from Smart Wood. Certification is expected to provide both new market openings and greater market security, particularly in America (M. Turok, interview, April 1999).

envisaged by Mexico's market-based reforms of 1992. Alternatively, it could expose communities to the threat of *intermediarismo*—the exploitation of community producers by middlemen—unless protective mechanisms are put in place. The implications of certification for community business and marketing strategies are discussed further in section 5.3.

3.3.3 *Diversity of forest communities*

The number and diversity of forest communities in Mexico are extremely high. This is something that promoters of community forestry quickly recognised when they tried to extend pilot forestry projects, even within the same region. A management model that succeeded in one community could not necessarily be transferred to another, because of each community's unique history and distinct social, economic and environmental characteristics (Chapela, 1990).

The difficulty of replicating experiences across the community forestry sector has important implications for certification. Firstly, it will be difficult to develop a package of standards and procedures that can be applied in more than a few situations. The problem is two-fold: certification standards must be precise enough to allow implementation and verification across a wide range of enterprises and forest types, yet must be broad enough to avoid inflexibility and unnecessary expense. At present, Mexican evaluators are finding that existing standards and procedures do not offer the precision needed to deal with local variation (G. Alatorre, interview, May 1998).

It remains to be seen whether the certification standards being developed by the Mexican national initiative will provide the required balance between specificity and flexibility. The development of standards tailored to different phyto-geographical regions offers scope for greater specificity. However, the factors that influence the sustainability of forest management cannot always be defined according to neat geographical divisions. In Mexico, experience has shown that enterprise organisation and management, decision-making structures, benefit distribution systems and internal community controls are the key determinants of success in community forest management (Merino, 1997c). These factors vary widely between different communities, but not necessarily on a region-to-region basis. In order to 'capture' this type of variation, it may also be necessary to tailor standards to different types of community enterprise.

A second implication of community diversity is that certifiers will need to take particular care when organising evaluation teams. The participation of Mexican evaluators is vital, but, more importantly, evaluators must have experience of local conditions. A social scientist who is familiar with, say, indigenous communities in Chiapas, may not necessarily be the appropriate choice for an evaluation of an *ejido* in Chihuahua (at least not until evaluation methodologies are improved and standardised). If the market for certification grows substantially, the need for

local experience could put pressure on the limited number of trained evaluators in Mexico, unless measures are taken to increase the pool of qualified individuals.

3.3.4 *Local traditions and the applicability of certification*

The high degree of community diversity in Mexico has implications not only for the design of certification systems, but also for the assumptions on which they are based. Current certification systems tend to assume that forests are under formal, well-documented and relatively stable management regimes, strictly delimited according to area and institutional responsibility (Thornber *et al.*, 1998). They also tend to assume that the organisation responsible for forest management has a set of social and economic values that follows western traditions of equity and efficiency.

The proportion of communities in Mexico that observe such enlightened practices is very low; perhaps no more than 10%. The majority of communities with forest resources do not have formal management regimes. Instead, they employ informal, mixed management regimes such as rotational shifting cultivation, agroforestry, or occasional timber harvesting for subsistence purposes. Although these regimes can provide the multiple forest values sought by certification, they are not considered eligible under current certification systems because they fail to meet the assumptions noted above. In addition, many communities have reached social and economic compromises that are designed to maintain internal stability in the face of limited resources, population growth and other pressures. Although these social contracts enjoy the legitimacy of customary law, they may fail to meet the criteria of equity, efficiency or legal clarity dictated by current certification standards.¹⁴

Given the limiting assumptions of certification, the question for Mexico is whether to increase the applicability of certification, or to restrict its scope of operation to forest management operations that follow conventional western norms of good practice. The former option would mean recognising alternative forest management strategies and making allowances for local traditions that appear outwardly to be inequitable or inefficient. In short, it would mean recognising alternative definitions of sustainability. The latter option, however, would mean limiting certification to a small fraction of Mexico's forest-owning communities.

The probable answer to this question lies in the distribution of benefits from certification. Realistically, only those forest enterprises that can sustain the formal, market-oriented management systems demanded by certification are likely to capture the economic benefits offered by certified markets. Even if certification were extended to less-developed enterprises, or to communities without formal management systems, it is unlikely that they would have the capacity to exploit its market benefits. Indeed, unless specific non-market applications can be developed for certification, the majority of forest communities in Mexico may be better served by alternative measures of support and promotion.

¹⁴ See the discussion on rotation of community positions in section 4.6.3.

4 CASE STUDY: THE UNION OF ZAPOTEC AND CHINANTEC FORESTRY COMMUNITIES (UZACHI)

4.1 Background to community forestry in Oaxaca

The state of Oaxaca covers 9.5 million hectares in southern Mexico, at the juncture of the Sierra Madre del Sur and the Sierra Madre Oriental mountain ranges. About 5.1 million hectares, or 54% of the state's territory, is covered in temperate and tropical forests, making Oaxaca one of the most heavily forested states in Mexico (SEMARNAP, 1998a). Oaxaca's population of three million is predominantly rural and indigenous in character, divided among 570 municipalities in which 16 different languages—excluding dialects—are spoken (Norget, 1997). Almost three in four people in Oaxaca belong to an indigenous group; this is the highest concentration of any state in Mexico. Oaxaca is also one of the poorest states in Mexico, with annual per capita incomes of less than half the national average. Together with adverse land and agricultural policies, the high levels of poverty exert strong pressure to clear forests for agricultural purposes. At the same time, high rates of out-migration (mostly to Mexico City and America) have reduced the pressure on the forest resource base (World Bank, 1997).

There are about 1500 *ejidos* and indigenous communities in Oaxaca, of which an estimated 40% have temperate forest holdings within their boundaries. According to a recent assessment by the World Bank, 236 communities have areas of pine-oak forest large enough to sustain commercial exploitation (World Bank, 1997). Of these, 114 manage 550,000 hectares of forest, with 41 selling standing timber, 43 harvesting timber, and 30 harvesting and processing timber in their own sawmills. The remaining communities do not manage any commercial timber extraction (World Bank, 1997).

Oaxaca is the fifth-largest producer of timber in Mexico. It produces over 7% of the country's pine harvest and 6% of the country's total timber harvest (SEMARNAP, 1998a). Most of this production is from community lands. Ten communities and *ejidos*, organised into three forestry unions (of which UZACHI—'the Union'—is one), control 40% of the total timber production in Oaxaca (World Bank, 1997). The potential for forestry development in Oaxaca is high: in 1997, the total timber harvest of 478,426m³ was only one-third of the total authorised volume (1.45 million m³) and less than half of the total processing capacity in the state (1.05 million m³) (SEMARNAP, 1998a).

The market value of pine sawnwood in Oaxaca has fluctuated in recent years, and currently averages 480 pesos/m³ (SEMARNAP, 1998a). In contrast, the average price for oak sawnwood is only 120 pesos/m³. The opening of Mexico's forest products market under NAFTA resulted in lower prices for imported timber than for locally harvested timber in Oaxaca City in 1994. This drop in prices reportedly led to the closure of half of the forest industry installations in Oaxaca City during the first two months of 1994 (Snook, 1997). However, price competition in Oaxaca (and other southern states) was less severe than in the north of

Mexico, because of the insulating effect of high transport costs (Zabin, 1995). The subsequent devaluation of the peso and strengthening economic conditions have substantially increased both output and demand for locally harvested timber.

4.2 History and evolution of the Union

4.2.1 *The concession era (1956-80)*

The four communities that today make up the Union—Comaltepec, Capulalpam, Xiacuí and La Trinidad—were suppliers of one of the largest concessions established under Mexico's post-war programme of industrial forestry development. In 1949, a harvesting ban was imposed on the catchment area of the Papaloapan river, in the Sierra Juárez mountains of northern Oaxaca. The ban was enforced until 1956, when the privately owned pulp and paper company FAPATUX was awarded a 25-year concession over 251,825 hectares of mainly temperate forest in the catchment area. The concession covered 10 indigenous municipalities, including Comaltepec, Capulalpam and Xiacuí.¹⁵

FAPATUX, which was nationalised in 1965, based its forestry programme on the selective Mexican Method (see Box 1). The company was required by law to negotiate annual timber contracts with the communities in its concession, but often used bribery, deceit and other divisive tactics to obtain timber at below-market prices (Bray, 1991; Abardía and Solano, 1995). Other legal obligations, such as the education and training of community members in forest management, and investment in public works and services, received scant attention. Many of the infrastructure projects promoted by FAPATUX were actually financed by the Papaloapan Commission, a body established by the federal government to oversee development in the catchment area of the Papaloapan river (Abardía and Solano, 1995).

For the first three years of its tenure, FAPATUX brought in skilled forest workers from outside Oaxaca. This practice was stopped in 1959, after local communities used the threat of a contract strike—and a petition to the President of Mexico—to obtain a guarantee of employment from the company (Winder, 1992). During the 1960s, further demands for higher stumpage fees and greater investment in community development projects went unheeded (Abardía and Solano, 1995). Eventually, in 1968, the community of San Pablo Macuilianguis boycotted the annual timber contract with FAPATUX and withdrew its labour (Snook, 1987; Winder, 1992). Another fourteen communities joined the boycott, which continued intermittently for five years and eventually forced FAPATUX's pulp mill to close temporarily in 1972 (Jardel, 1990; Bray, 1991; Abardía and Solano, 1995).

The boycott forced FAPATUX to agree to an increase in stumpage fees, higher piecework rates for logging teams and ancillary benefits such as payments for school teachers (Zabin, 1989, cited by Winder, 1992). The company also installed a sawmill in the community of Ixtlán,

¹⁵ The community of La Trinidad lies within the municipality of Xiacuí.

to be managed by Ixtlán and the neighbouring communities of Capulalpam, Xiacuí and La Trinidad (Alatorre, 1992; Abardía and Solano, 1995; López, 1995). The resulting inter-communal enterprise—known as IXCAXIT from the initial letters of the four participating communities—functioned for several years but was dominated by the larger and more powerful community of Ixtlán. The three smaller communities eventually withdrew from the enterprise, leaving Ixtlán as the sole beneficiary (G. Alatorre, interview, May 1998).

4.2.2 The struggle for community timber rights (1980-84)

In effect, the settlements made by FAPATUX forestalled any further community action during the 1970s (Bray, 1991). It was not until the early 1980s, and the impending expiry of FAPATUX's concession, that the communities of the Sierra Juárez once again organised themselves into a united front. In March 1980, 13 communities came together to form the Organisation for the Defence of the Natural Resources of the Sierra Juárez (ODRENASIJ). In common with grassroots efforts in other states, ODRENASIJ's purpose was to prevent the renewal of FAPATUX's concession and secure the right for communities to manage their own forests (Bray, 1991).

Aided by a small group of local activists and sympathetic government reformers, ODRENASIJ embarked on an intensive campaign of lobbying and public education. The organisation also organised another boycott of timber sales to FAPATUX's pulp mill (Winder, 1992). However, in November 1982, the concessions of both FAPATUX and another parastatal enterprise in Oaxaca were renewed by presidential decree (Abardía and Solano, 1995). The members of ODRENASIJ responded immediately by submitting a petition to the President of Mexico and filing legal actions against the contested presidential decrees. Reinforced by the boycott of timber sales—which severely affected industrial production—these actions led to the suspension of the decrees in 1983 and, finally, the nullification of both concessions by a federal judge in 1984 (Abardía and Solano, 1995). The revocation of the concessions was soon followed by the forestry law of 1986, which returned the control of timber rights to local communities.

4.2.3 Bringing discipline to community forest management (1984-93)

Although newly responsible for their forests, many communities in the Sierra Juárez had little experience of forest management and only limited funds. They also lacked a strong regional organisation: ODRENASIJ had been disbanded soon after its victory, and efforts to create a successor organisation to support community forestry development were frustrated by inter-communal rivalries (Bray, 1991; Winder, 1992). Some communities continued to sell timber to the parastatals under conditions similar to the concession period. Others sold standing timber on the open market or established their own harvesting operations, in some cases with machinery acquired from FAPATUX as payment for outstanding debts (Abardía and Solano,

1995). Forest enterprises¹⁶ were established in Comaltepec in 1982, in Capulalpam and La Trinidad in 1984, and in Xiacuí in 1989 (UZACHI, 1993). As communities began to consolidate their forest management operations, timber production in Oaxaca once again started to rise, reaching a peak of 559,000m³ in 1991 (Zabin, 1995).

By 1988, many community organisations had formed throughout Oaxaca, but faced difficulties in obtaining legal recognition. The state governor, alarmed at the rapid growth in independent community organisations, had created an umbrella organisation for forest communities known legally as an *asociación rural de interés colectivo* (rural collective association) (Winder, 1992; Ascher, 1995). Only those communities that joined the umbrella organisation and placed themselves under state control were granted legal recognition. Organisations that refused to join were denied access to government funds and faced numerous obstacles in setting up and managing their own forestry technical services¹⁷ (Alatorre, 1990; Madrid, 1990). The community organisations within the umbrella organisation also encountered a number of problems, including state interference in the distribution of their profits (Ascher, 1995).

Among the community organisations that managed to resist efforts by the state to incorporate them was the Union of Zapotec and Chinantec Forestry Communities (UZACHI). The Union had been formed in 1989 by Comaltepec and four other ex-members of ODRENASIJ: Capulalpam, Xiacuí, La Trinidad and Yatuni.¹⁸ In the words of one of its officials, the Union was created to 'bring discipline to forest management', by means of a community-controlled technical services programme (F. Garcia, interview, May 1999). However, the organisation's position outside the state-sponsored umbrella scheme—and resulting unofficial status—meant that it was unable to obtain permission to manage its own technical services. Instead, the Union was forced to pay fees to external service providers, even though it was already carrying out management planning with a team of trained community foresters.

It was not until 1992, when the state umbrella organisation was disbanded, that the Union finally received official recognition and a government concession to manage its own technical services (Merino and Alatorre, 1997). One of the first actions of the 'official' organisation was to submit a new 10-year management plan for government approval in 1993. The plan, which had been developed together with the local non-governmental organisation ERA (Rural Studies and Assistance), replaced an earlier study originally prepared by FAPATUX foresters. For the communities of the Union, the management plan was the point of departure for a new model of forest-based development, known to them as 'community silviculture' (F. Garcia, interview, May 1999).

¹⁶ These are officially known as Unidades Economicas de Aprovechamiento Forestal (Forest Production Units, or UEAFs).

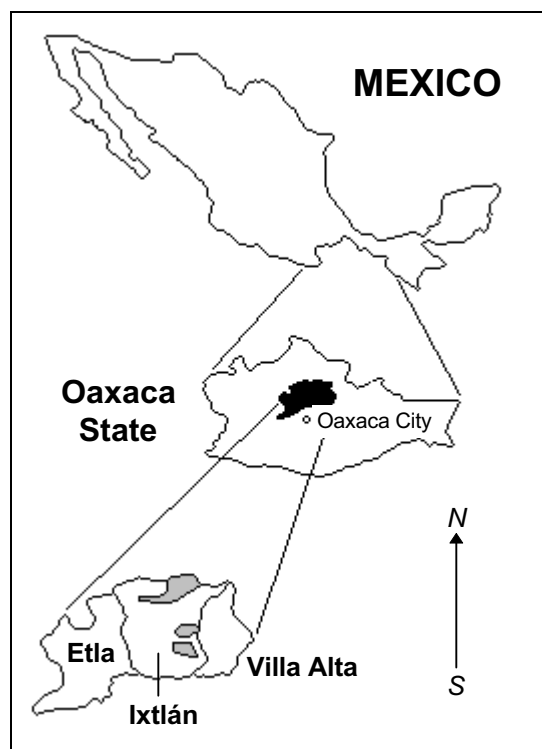
¹⁷ The 1986 forestry law made it possible for community enterprises to manage their own forestry technical services. This reduced the cost and delays often involved in contracting private service providers (see section 2.2.2).

¹⁸ Yatuni was only briefly a member of the Union before withdrawing from the organisation.

4.3 Overview of forest enterprise in Union member communities

4.3.1 Physical and social setting

The four member communities of the Union lie in the Sierra Juárez mountain range, about 90km north of Oaxaca City (see Map 1). The Sierra Juárez, which is part of the Sierra Madre Oriental, is 115km long and 29km wide, with an average altitude of 2,500m and peaks above 3,000m (Bray, 1991). Climatic conditions in the Sierra Juárez are cool and humid. Rainfall is concentrated in the months between May and October, and can reach 2,500mm/yr on slopes facing the Gulf of Mexico (Rainforest Alliance, 1998c). A wide range of natural forest types occur in the Sierra Juárez, including cloud forest, pine forest, mixed pine-oak forest, and moist and dry tropical montane forest. Of these, the pine and mixed pine-oak forests have the greatest commercial value. These forests are dominated by three species, *Pinus patula*, *P. pseudostrobus* and *P. ayacahuite*, which have a natural lifespan of 80-120 years and can reach a height of 35m and a diameter of 120cm (Rainforest Alliance, 1998c). In the mixed pine-oak forests, oaks (principally *Quercus laurina*, *Q. rugosa* and *Q. crassifolia*) regenerate in the shaded conditions of the forest understorey.



Map 1. Map of the communities of the Union, Oaxaca, Mexico. The communities (shaded grey) are located in the District of Ixtlán. From north to south, the communities are: Comaltepec, Xiacuí and La Trinidad (contiguous), and Capulalpam. Source: UZACHI.

The Sierra Juárez is inhabited by two major indigenous groups: the Zapotecs and Chinantecs. Until the region was opened to commercial logging in the 1950s, these groups lived in small isolated communities, supported by subsistence agriculture and the exchange of goods

between villages and towns (Snook, 1987; Zabin, 1989, cited by Winder, 1992). The construction of a road into the Sierra Juárez in 1959 had a significant impact on this self-contained regional economy. In the 1960s, an influx of cheaper agricultural products from outside Oaxaca flooded the local market and forced many people to abandon farming (Abardía and Solano, 1995). Those who could not find alternative employment in forestry left the mountains and migrated to Mexico City or America. The desire to prevent out-migration has been one of the main driving forces behind the spread of community forest enterprise in the region (Snook, 1987).

The communities of the Union are located in a mainly Zapotec region, and only one community—Comaltepec—is Chinantec. Each community has legal title to its lands, conferred by presidential decree under Mexico's agrarian reform.¹⁹ Although the size and population of each community varies, the dominant land use is forestry (see Table 1). Forests play an important social and economic role in each community, but their overall economic contribution is limited by conservative management policies (see section 4.3.3). All four communities are located close to the main road crossing the Sierra Juárez and have access to alternative economic opportunities such as cultivation of coffee and citrus fruits, mining and employment in the manufacturing and service industries of nearby towns and cities.

COMMUNITY	Population	Total Area (hectares)	Forest Area (hectares)	% Forest Cover
La Trinidad	767	805	733	91.1
Xiacuí	835	1,681	1,644	97.8
Capulalpam	1,376	4,144	3,665	88.4
Comaltepec	2,277	18,166	15,653	86.2
TOTAL	5,255	24,796	21,695	87.5 (average)

Table 1. Area and population data for the communities of the Union. Area figures have been rounded up to the nearest hectare. Source: UZACHI, 1998.

The administrative structure of each community combines traditional Zapotec and Chinantec institutions with the formal requirements of agrarian legislation. The highest authority in each community is the general assembly of *comuneros*, which is convened at regular intervals to formulate bylaws, elect community officials and determine the use and management of communal lands and resources. The responsibility for implementing the decisions of the general assembly and administering communal property lies with the community commission (*comisariado de bienes comunales*), which is staffed by elected officials who serve a three-year term. The work of the commission and other internal groups such as the forest enterprise is monitored by an oversight committee (*consejo de vigilancia*), which conducts periodic internal audits and reports directly to the general assembly. In some communities, there is

¹⁹ Superimposed on the agrarian structure of the countryside is a civil system based on municipal units. Both the communities of Capulalpam and Comaltepec are also municipalities; the community of Xiacuí is the seat of a municipality that includes the community of La Trinidad. In these communities, two administrations—municipal and agrarian—exist side by side, each with its own clearly defined responsibilities. The former deals with health, education and other public services, and the latter deals with land use and the administration of common property, for example forests.

also a council of distinguished men (*consejo de caracterizados*), which does not have legal status but has traditionally advised the general assembly on policy and strategy (see Figure 1).

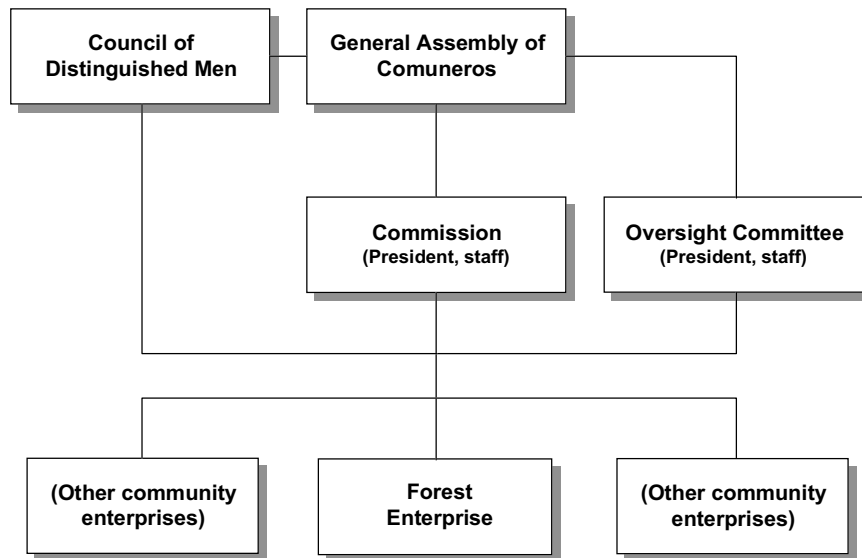


Figure 1. Simplified organisational chart of an indigenous forest community in the Sierra Juárez, Oaxaca. Source: Adapted from Chapela (1998b) and Klooster (forthcoming).

Legally, *comuneros* are men or women over the age of 18 who have land rights and voting rights in the general assembly. Any member of the community can become a *comunero* and acquire these rights, provided they comply with certain traditional requirements such as the occupation of *cargos* (unpaid civil and religious offices) and participation in *tequios* (voluntary collective work). The strength and importance of these traditional values and institutions varies within the Union, depending on each community's history and degree of social and economic integration. For example, in the community of Capulalpam, which has undergone a long process of acculturation, the Zapotec language is no longer spoken and traditions such as *tequio* have weakened in recent years (Winder, 1992; Merino and Alatorre, 1997).

4.3.2 Forest management and administration

Although the details of enterprise structure and functioning differ between communities, they all have certain features in common. Firstly, the enterprise is not an autonomous entity, but is embedded in the administrative structure of the community. This means that the managers of the enterprise are accountable not only to the oversight committee (as required by law), but also to the general assembly of *comuneros*. It also means that enterprise managers, in common with other community officials, are elected to their positions for terms of one to three years. During this time, they are obliged to follow strict procedures for accounting and reporting. Typically, they must submit financial reports to the general assembly every four months. At the end of their terms, the records of the enterprise are audited, either by a

specially formed committee of *comuneros* (*comisión revisora*), or by an external accountant (C. Perez, interview, May 1999).

Another common feature, which stems from the enterprise's subordinate position in the administrative hierarchy, is the delivery of all profits to the community commission. The commission manages these according to decisions taken by the general assembly. Among the communities of the Union, profits are typically divided between communal works and services, and reinvestment in the enterprise. Because none of the communities have long-term investment plans, the proportion allocated to each of these activities varies according to need. The division of profits between *comuneros*, which is common in many other forest communities, is not practised in the Union. The enterprise also pays a stumpage fee (*derecho de monte*) of up to 200 pesos/m³, which is used to finance the administrative costs of the community commission (B. Luna, interview, May 1999). This fee is fixed in advance of the harvesting season and does not take into account fluctuations in product prices (Zabin, 1995).

All of the enterprises share the same basic internal organisational structure. This can be characterised as unitary, i.e. the enterprise is organised into separate functional units (forest operations, sawmill, finance, etc.) which are overseen and controlled by a single administrator or administrative body (Hornby *et al.*, 1997). This pattern can be seen in the structure of the forest enterprise of La Trinidad (see Figure 2). Job creation is an important function of every enterprise,²⁰ yet the number of employees in each enterprise is low in comparison to the total population. In Capulalpam, for example, only 25 *comuneros*, or just over 10% of all male *comuneros*, are permanently employed in the forest enterprise (B. Luna, interview, May 1999).

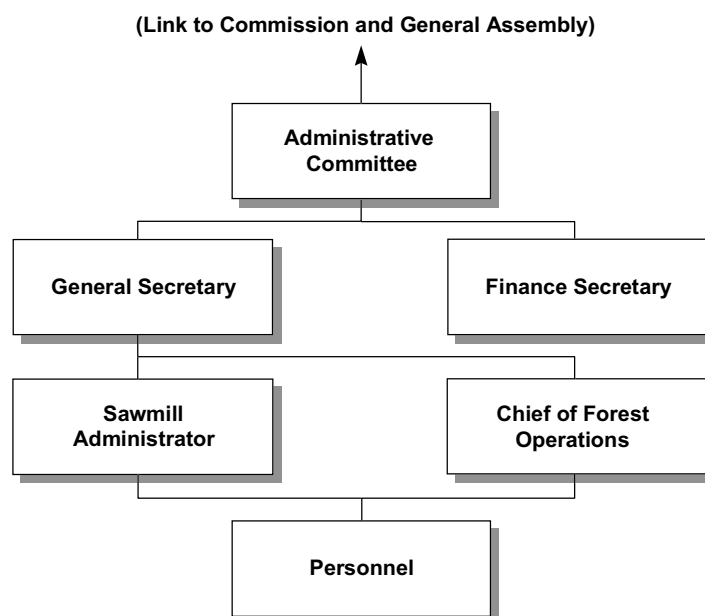


Figure 2. Organisational chart of the forest enterprise of La Trinidad community. Source: UZACHI.

²⁰ This is a typical feature of community enterprises across Mexico (Merino, 1997a).

Elected enterprise managers do not receive salaries, but are paid an honorarium of between 300 and 500 pesos per month (E. Cosmes, interview, May 1999). Permanent employees receive wages that are differentiated according to responsibility, but not age or experience. Wages for sawmill workers in Capulalpam range from 35 pesos/day for *peónes* (labourers) to 70 pesos/day for the sawyer.²¹ Forest workers are paid on a piecework basis for each cubic metre felled. The enterprise does not make provision for insurance or pensions, but sick workers are compensated for lost earnings and the costs of medical treatment (C. Perez, interview, May 1999).

Enterprise workers form a relatively homogeneous group. Among the indigenous forest communities of Oaxaca, workers are typically married men, with an average schooling level of only 4-6 years of primary education (López and Gongora, 1995). However, the system of *cargos* in each community means that most men, once they have reached middle age, have gained substantial 'hands-on' experience in a variety of positions, albeit for only one to three years at a time.

Individual community enterprises in the Union are responsible for their own forest operations, timber processing and marketing. The responsibility for management planning lies with the Union itself, and in particular the Union's technical services unit (*Dirección Técnica*). The administrative structure of the Union conforms to the requirements for community unions laid down in Mexico's agrarian law (Government of Mexico, 1992b, Articles 108-109). The governing body of the Union is the general assembly of delegates, which meets every two months and consists of four delegates from each member community.²² The assembly elects an executive body, the administrative council, and an oversight committee for a term of three years (see Figure 3 below).

The Union's technical unit is staffed by four *comuneros*, all of whom have formal qualifications in forestry at either technical school or university level. In addition to management planning, the Union's foresters coordinate fire prevention, pest and disease control, nursery management and training of enterprise staff in book-keeping, volume measurement and other basic tasks. They also train community foresters, who are young, educated *comuneros* that have been nominated by their communities to supervise forestry operations in conjunction with the Union's technical unit. Lastly, the Union's foresters are responsible for liaising with government agencies and coordinating external research and technical assistance projects. Recent projects have included a carbon offset scheme with the Mexican Council for Sustainable Forestry, a 'bio-prospecting' agreement with the Swiss life sciences company Novartis, and mushroom and orchid cultivation trials.²³

²¹ The minimum agricultural wage in the region is 30 pesos/day.

²² Two of the delegates are elected by the community general assembly. The other two delegates represent the community commission and oversight committee.

²³ All of these projects were instigated by ERA. The carbon offset scheme has been developed under the auspices of the North American Commission for Environmental Cooperation (CEC).

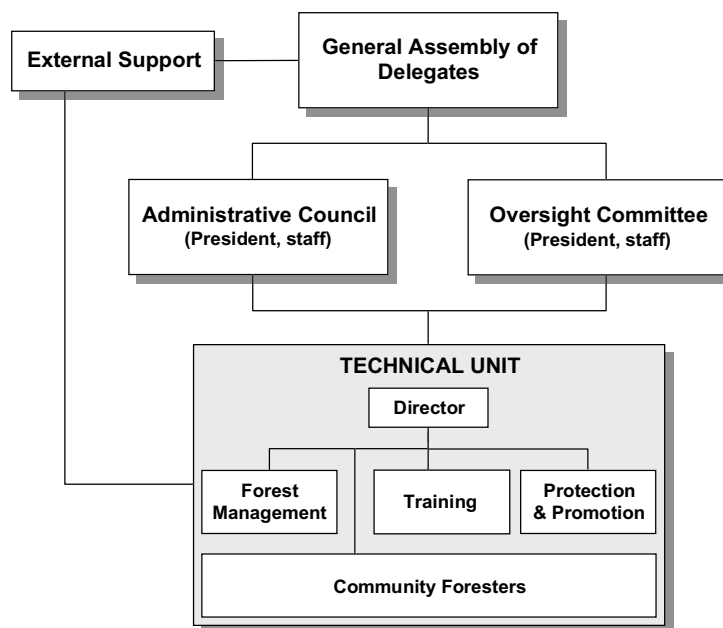


Figure 3. Organisational chart of the Union and its technical unit. Source: UZACHI.

The salaries and administrative costs of the Union's technical unit are determined in a yearly budget, which is prepared by the unit and submitted to the Union's general assembly each May.²⁴ The budget must be approved by the general assemblies of each member community before it can be adopted. Once adopted, it is divided equally between the Union's members, who pay by monthly quota. Members' contributions currently account for about 53% of the budget; the remainder is provided by a project of technical assistance with the Rockefeller Foundation in America (R. Ramírez, interview, May 1999). Allowing for inflation, the cost of technical services has remained quite stable, and is at present about 18 pesos/m³.

Forest management in each community follows the global plan of management prepared by the Union's technical unit (with support from ERA) and approved by the government in 1993. This plan takes account of special circumstances within individual communities. One of the main objectives of management is the restoration of forests that were degraded by extensive application of the Mexican Method during the concession era (see Box 1). This contributed to the genetic impoverishment of pines and the opportunistic expansion of oaks and other broadleaf species. In La Trinidad, for example, selective harvesting left 327 hectares of pine forest, or almost half of the community's reserve, with an average tree diameter of only 25cm (Chapela and Lara, 1995). This is well below the minimum diameter of 28cm required by most sawmills in the region.

The Union has developed three separate silvicultural systems to restore the vigour and dominance of pines. In forest stands dominated by *P. patula*, an intensive system (*silvicultura intensiva*) is used. This involves a uniform opening of the canopy on a 40-year rotation, and

²⁴ For the purposes of forestry planning and operations, the financial year runs from 1 July to 30 June.

the retention of a small number of seed-bearing trees (about 20 per hectare) for regeneration purposes²⁵ (UZACHI, 1993). Felling coupes in this system are up to 4 hectares in area. In stands dominated by *P. pseudostrobus*, *P. ayacahuite* and oak, a low intensity system (*silvicultura de baja intensidad*) is used. This involves the selection felling of pines in groups of 0.3 to 0.75 hectares on a rotation of 60 years (UZACHI, 1993). Controlled burning is used in both the intensive and low intensity systems to promote natural pine regeneration (Rainforest Alliance, 1998c). Lastly, in the transition zones between production and protection areas, a low impact system (*silvicultura de bajo impacto*) is used which involves selection fellings to promote natural succession by oaks and other broadleaf species (Rainforest Alliance, 1998c).

These systems are supplemented by programmes of genetic improvement and reforestation using seed collected from designated seed areas. Areas of forest have also been designated as conservation zones, and are used for purposes such as the protection of aquifers, wildlife conservation and harvesting of non-timber forest products (Rainforest Alliance, 1998c). Lastly, forest reserves have been set aside for research into different silvicultural treatments. Table 2 shows the distribution of each forest use in the communities of the Union.

	LA TRINIDAD	XIACUÍ	CAPULALPAM	COMALTEPEC
Intensive silviculture	327	387	598	564
Low intensity silviculture	365	588	340	444
Low impact silviculture	-	-	527	-
Watershed protection	-	152	676	503
Fauna conservation	-	129	93	2,754
Reserves & research areas	-	-	-	8,450
Seed areas	-	5	20	41
Reforestation	27	78	99	41
Domestic & recreational use	14	305	1,312	3,056
TOTAL	733	1,644	3,665	15,853^a

Table 2. Forest use in the communities of the Union. Figures are in hectares and have been rounded up to the nearest hectare. Source: UZACHI, 1993.

^a The total area of forest in Comaltepec is at present 15,653 hectares (see Table 1).

4.3.3 Production and marketing

The total annual production of commercial roundwood by Union communities is about 11,200m³. This does not include an estimated volume of 8,540 m³ that supplies local firewood and housing construction needs (Rainforest Alliance, 1998c). As can be seen from Table 3 below, current production levels are well below potential levels, particularly for broadleaf species. Harvest levels in the community of Capulalpam, for example, are consistently less than half of those authorised by the management plan.

²⁵ This is a variant of the Method of Silvicultural Development (MDS: see Box 1).

	1993-94	1994-95	1995-96	1996-97	1997-98
LA TRINIDAD					
Conifers^a					
<i>Potential</i>	3,299	3,177	3,209	3,158	3,396
<i>Actual</i>	2,722	2,462	2,448	3,137	3,333
Broadleaves^b					
<i>Potential</i>	1,285	966	988	992	1,390
<i>Actual</i>	329	605	230	502	406
TOTAL^c (% potential)^d	3,051 (67)	3,067 (74)	2,678 (64)	3,639 (87)	3,739 (78)
CAPULALPAM					
Conifers					
<i>Potential</i>	4,429	4,663	4,657	4,658	4,597
<i>Actual</i>	1,381	1,781	1,848	2,877	2,107
Broadleaves					
<i>Potential</i>	1,838	1,902	1,974	2,042	2,422
<i>Actual</i>	269	241	345	362	113
TOTAL (% potential)	1,650 (26)	2,022 (31)	2,193 (33)	3,239 (48)	2,220 (32)

Table 3. Actual and potential commercial production volumes for the communities of La Trinidad and Capulalpam, 1993-98. Figures are in cubic metres (m³). Source: UZACHI.

^a Principally pine (*P. patula*, *P. pseudostrobus* and *P. ayacahuite*)

^b Principally oak (*Quercus* spp.) and *Persea* spp.

^c Total actual production

^d Total actual production expressed as a percentage of total potential production.

The reasons for the low production volumes are social and economic rather than technical. The immediate reason is that the general assembly of each community, which sets yearly production levels, usually allows the enterprise to harvest only a limited volume of timber. Communities choose to limit their production for two main reasons. Firstly, each community tends to pursue business objectives that are aimed at satisfying immediate needs, rather than maximising profits, sales revenues or enterprise growth. Secondly, commercial forest exploitation is perceived to carry significant environmental risks, and the majority of *comuneros* are naturally averse to risks of any kind. Indeed, there is a body of opinion in every community that opposes commercial forest exploitation of any kind because of doubts as to the ability of the forest to regenerate (G. Alatorre, interview, May 1999).²⁶

In contrast to forest management, the Union has no global plan for product development and marketing. Each community has always processed and sold its annual production independently (Rainforest Alliance, 1998c). The processing facilities in the Union range from a 4-inch portable mill in La Trinidad to 6-inch and 8-inch fixed band saws in the other three communities. La Trinidad's portable mill has a processing capacity of 2,000 board feet per day, whereas the other mills have a capacity of 4,000 to 6,000 board feet per day (UZACHI, 1993). Much of the milling equipment is outdated, and operates well below its installed

²⁶ These attitudes may be more indicative of the economic development of a community than an indigenous conservation ethic. The Zapotec community of Nuevo Zoquiapan, for example, which is similar in size to Capulalpam but more dependent on earnings from forestry, usually harvests almost 100% of its authorised production volume (Winder, 1992).

capacity (Ward, 1997). In addition to sawmills, three of the communities have carpentry workshops attached to their forest enterprises, and the community of La Trinidad has a charcoal kiln. The community of Capulalpam also has an electric drying kiln, but this has never been used because the operating voltage of the community's electricity supply is too low (R. López García, interview, May 1999). At present, all timber is dried in the open air.

The communities of the Union sell part of their production as logs for pulp, triply or boards, and the remainder is processed in community sawmills. The main product is pine boards of three-quarter inch width and eight foot length (Rainforest Alliance, 1998c). Prices for first class quality pine boards have doubled in the past six years from 3.2 to 6.5 pesos/board foot (C. Perez, interview, May 1999). Highland pine timber from the Sierra Juárez has a reputation for quality and is much in demand. Consequently, the communities of the Union have little difficulty in selling all of their output, and tend to rely on word of mouth, rather than active marketing, to attract new clients. The main markets are in Oaxaca, but the communities also have regular clients in Mexico City, Puebla, Morelos, Chiapas and elsewhere. Each enterprise has a different policy for selling timber to members of the community. In Capulalpam, for example, members pay the market price for timber, but do not pay value-added (sales) tax (C. Perez, interview, May 1999). In La Trinidad, community members pay only production costs (R. Martínez, interview, May 1999). Timber for communal works and services, however, is usually donated to the community.

In contrast to pine, the communities produce only small quantities of oak and other broadleaf timbers for firewood, charcoal, pulp and furniture making. The principal limitations to using oaks are the range of species with different physical characteristics, the tendency of the timber to split or warp unless it is dried properly, the need for high quality steel saws and the poor development of local markets (Snook, 1997). Oak firewood, charcoal and pulp are sold at low prices and long-distance transport is uneconomical.

4.4 Driving forces and objectives of certification

In common with other early community forest certifications, the initial driving force behind certification came from outside the Union (see Markopoulos, 1998; 1999). In 1992, Francisco Chapela, the president of ERA and a close friend of the Union, recommended certification as a way of avoiding the price competition expected from NAFTA. In particular, certification was presented as a tool for marketing oaks and other lesser-used broadleaf species that lacked local markets (J. Hernández, interview, May 1999). According to a former member of ERA, the Union decided to pursue certification because it had confidence in Chapela's judgement, not because it had a clearly defined marketing strategy (S. Madrid, interview, April 1999). Nevertheless, members of the Union were also aware that certification could provide important feedback on their new management plan, and perhaps raise the profile of the young organisation. In 1993, ERA organised a pre-assessment of the Union by the Smart Wood programme of the Rainforest Alliance. After a brief survey of forest management in Union

member communities, Smart Wood recommended that the Union formally apply for certification (F. Chapela, interview, May 1999).

Between 1993 and 1995 (the year of the certification evaluation), Mexico's internal forest products market was liberalised in the process described in section 2.2.3. The resulting price competition in Oaxaca increased the attractiveness of certification to the Union, although there was little experience of marketing certified products either in Mexico or abroad. At the same time, a debate took place in Oaxaca on the proposed introduction of a logging ban. The state government wanted to impose the ban to curb deforestation, but was opposed by the main community forestry unions. In the end, the ban was not imposed, but the potential of certification to demonstrate responsible forest management to external authorities was not lost on the Union (F. Chapela, interview, May 1999).

In July 1995, the Union requested Smart Wood to carry out a formal evaluation. In December of the same year, the evaluation was carried out by a joint team from the Mexican Council for Sustainable Forestry and Smart Wood. By this time, ERA had become a member of the Forest Stewardship Council and Francisco Chapela was preparing to launch the Mexican national certification initiative.²⁷ The Union, through its links with Chapela and ERA, was to become a participant in the initiative and a strong supporter of FSC.

4.5 Certification results and stakeholder responses

The certification evaluation of December 1995 was carried out over a period of 15 days by a four member multi-disciplinary team. The team was led by Smart Wood's Latin American network coordinator, assisted by an ecologist, an agronomist and a forester from the Mexican Council for Sustainable Forestry. The evaluation was organised by the Union, with ERA helping to facilitate communication with Smart Wood. The greater part of the estimated US\$12,000 cost of the evaluation was borne by Smart Wood and the Mexican Council, using funds from certified products buyers and foreign donors. The Union paid only a small proportion of costs, mainly in the areas of transport and accommodation for the evaluation team (F. Chapela, interview, May 1999).

The certification standard used for the evaluation was Smart Wood's Generic Guidelines for Assessing Natural Forest Management (see Rainforest Alliance, 1993a, for the guidelines in force at the time of the evaluation). This was supplemented by the official Mexican norms for forest management and environmental protection. In common with all other assessments carried out by Smart Wood, the methodology followed during the evaluation was based on Smart Wood's Source Certification and Audit Procedures (see Rainforest Alliance, 1993b).

The results of the evaluation were generally positive. The evaluation team noted that the management plan, inventory and maps had been properly prepared with community

²⁷ Chapela was approved as FSC contact person for Mexico in February 1996.

participation, and were generally followed in the field. However, the provisions for post-harvest monitoring were weak, and the Union lacked both contingency plans and a coordinated marketing strategy. Silvicultural treatments and other forestry operations were considered adequate for local conditions, although the low intensity silvicultural system was criticised for the lack of attention to clearing harvesting residues. As a result, natural pine regeneration was being retarded and extra costs were being incurred through enrichment plantings.

In terms of environmental impacts, the team noted that a large area of forest had been protected, and that forestry operations were neither damaging the forest nor prejudicing community access for subsistence purposes. However, the wastage of broadleaf species during harvesting—owing to a lack of markets—was seen as a threat to their conservation status, and a failure to optimise the productive potential of the forest. The evaluation team recommended that broadleaf forest areas be reserved from clearance until markets could be found for these species. With respect to social and economic aspects, the team noted that the structure of relations between the forest enterprise and general assembly in each community was good, and that the forest enterprise was an important source of income and secure employment for *comuneros*.

The result of the evaluation was a recommendation that the Union be certified as 'well-managed with conditions' (Rainforest Alliance, 1998c). The team did not identify any preconditions for certification.²⁸ The certification contract was signed by three communities of the Union in September 1996 and presented at a public ceremony in Capulalpam. The fourth community—La Trinidad—did not sign the contract until almost a year later (see below). Under the terms of the contract, the Union was asked to comply with 23 conditions over a three-year period from 1996 to 1999 (see Table 4 below).

The Union's response to the evaluation and final certification decision appears to have been generally favourable. According to the Union's technical director, the members of the evaluation team had a good understanding of the conditions within the Union (J. Hernández, interview, May 1999). This was helped by the fact that three of the team were Mexicans, though not from Oaxaca. The conditions imposed by Smart Wood were less well received, particularly as many appeared to overlap with existing work programmes within the Union (R. R. Ramírez, interview, May 1999). The Union's general assembly, which reviewed the conditions and recommendations made by Smart Wood, was forced to seek clarification for a number of conditions (see further discussion in section 4.6).

Interestingly, the Union did not comment on the two conditions that deal with marketing of certified products (year 2, conditions 3 and 4). It is worth noting, however, that conditions such as these, which are linked to the role played by certification, are flawed in several respects. Firstly, and most importantly, they do not directly address a weakness in forest management and therefore fail to meet the two main criteria for corrective action requests, which are to

²⁸ Preconditions are equivalent to major corrective action requests (CARs). Conditions are equivalent to minor CARs.

Year 1 (1996-97)

Sustained yield management

1. Prepare written annual working plans for use by forest management teams in each community.
2. Prepare contingency plans for dealing with market fluctuations, forest fires, etc.
3. Erect signs on the road crossing Comaltepec, advertising existence of conservation areas.
4. Formalise and disseminate guidelines for skidding and extraction roads.
5. Explore opportunities for commercialising lesser-used broadleaf species.
6. Carry out sawing and wood-working tests for oaks and other lesser-used species.

Environmental impact

7. Concentrate management on areas of intensive silviculture.
8. Systematise post-harvest evaluations.
9. Clarify management objectives and guidelines for conservation areas.
10. Protect areas of old growth pine forest, high altitude pine forest (> 3,000m) and cloud forest.
11. Avoid harvesting on slopes greater than 60%. Leave bands of protective vegetation along contours.
12. Design system for monitoring and preventing illegal logging and hunting (to be implemented in Year 2).
13. Rationalise system of permanent sample plots and stratify across specific production forest types.
Redistribute sample plots to cover species of greatest commercial value.

Social impact

14. Improve training and equipment for fire-fighting crews. Prepare a fire prevention and control plan.
15. Ensure that community members who receive training are given work in the forest enterprise, in return for an agreement to work for the enterprise for at least two or three years.

Year 2 (1997-98)

Sustained yield management

1. Improve the classification and mapping of forest vegetation and incorporate this information into management planning.
2. Improve the design of the continuous inventory and monitoring systems.
3. Using results from wood-working tests, prepare a marketing strategy for certified wood products.
4. Design promotional materials for certified wood products.

Environmental impact

5. Establish guidelines for management and control of hunting in wildlife reserves.

Year 3 (1998-99)

1. Explore potential of NTFPs in timber production areas, for example *Litsea* and *Persea*.
2. Evaluate the population size and productive potential of NTFPs.
3. Provide informal environmental education for community members.

General Recommendations^a

1. Comaltepec should prepare a conservation plan for cloud forests in La Esperanza zone.
2. The Union should pursue an active campaign of forestry education in member communities.
3. A community authority responsible for auditing the operations of the forest enterprise is needed.
4. Comaltepec's experience in resolving boundary conflicts should be shared with other communities in the region and further afield in Mexico.

Table 4. Conditions imposed by Smart Wood under the terms of the certification contract signed with the Union in September 1996. Original subject headings have been retained. Source: Rainforest Alliance, 1998c.

^a Recommendations may implemented if time and resources allow—unlike conditions (minor CARs) they are not obligatory under the terms of the certification contract.

ensure compliance with the certification standard, and to provide a means of continual improvement (Upton and Bass, 1995). Secondly, the decision on how to exploit certification should rest with the certified enterprise, not the certifier, because the enterprise will bear the risks associated with a particular course of action. Thirdly, it is extremely difficult for the certifier to enforce such conditions. The enterprise cannot be penalised for non-compliance if policy or market conditions change and certification is no longer able to play the role envisaged for it. In the case of the Union, local market growth was to undermine the original rationale for certification (see section 4.6.2).

Within the communities of the Union, the results of the certification evaluation were discussed by the general assembly of *comuneros*. To judge from the author's observations, however, only the Union's foresters have actually read the evaluation report and familiarised themselves with the conditions of certification. Nevertheless, this should not be seen as a serious lapse in communication. The responsibility for implementing certification lies with the Union's technical unit, and *comuneros* generally do not concern themselves with the details of the unit's work. In fact, *comuneros* are less concerned with process than they are with product. In this respect, they may be likened to the shareholders of a public limited company: provided that the managers of the company (the administrators of the forest enterprise and the Union's technical unit) meet certain objectives (steady profits, improvements in forest quality, etc.) the majority of shareholders do not concern themselves with the day-to-day details of company operation.

The only serious problems with certification occurred in the community of La Trinidad. La Trinidad did not sign the certification contract until April 1997, after a long period of internal conflict and uncertainty. This was caused by a breakdown in communications between Smart Wood, the Union and the community's general assembly. Some *comuneros* in La Trinidad took the terms of the certification contract—which was in English—to mean a sales agreement between the Union and Smart Wood (R. Vasquez, interview, May 1999). References to American laws in some clauses of the contract aggravated fears that certification would oblige the community to sell its high quality timber to Smart Wood ²⁹ (G. Alatorre, interview, May 1999). Although the confusion was eventually resolved, it increased the reluctance of the community to take risks in certified markets.

4.6 Analysis of certification impacts

4.6.1 Forest management and administration

In general terms, the certificate awarded to the Union was a recognition of its efforts to organise and coordinate sustainable community forest management. Smart Wood did not find any major faults in the Union's management scheme, and the conditions imposed under the

²⁹ Smart Wood is a programme of the Rainforest Alliance, which is based in New York.

certification agreement are clearly designed to consolidate and strengthen existing management practices.

In some cases, however, the conditions imposed by Smart Wood appear to duplicate existing management practices, or to refer to non-existent lapses in management. For example, annual fire prevention plans (year 1, condition 14) were already in place before certification. So too were the systematic post-harvest evaluations (year 1, condition 8), which are required by law.³⁰ All high-altitude pine forests and cloud forests (year 1, condition 10) have been given explicit protection under the Union's 1993 management plan. Lastly, the system for monitoring illegal logging (year 1, condition 12) is not seen as important because member communities have successfully protected their forests against illegal incursions since they regained control in the 1980s (R. Ramírez, interview, May 1999).

As mentioned in the previous section, the Union was forced to seek clarification for these apparently unnecessary conditions. Smart Wood's response was that it wanted the Union to consider more detailed and specific approaches to the issues in question (R. Ramírez, interview, May 1999). However, in the absence of any instructions or guidance from Smart Wood, the Union has been forced to tackle these conditions as it sees fit. As a result, several conditions have been only partially addressed, or have been disregarded altogether.

In some areas of management, such as environmental protection, the Union has made changes in order to comply with Smart Wood's conditions. For example, an area of old-growth pine forest in the community of La Trinidad (year 1, condition 10) has now been set aside from management. With support from ERA and the Oaxaca office of WWF, the Union has also prepared a management programme for conservation areas (year 1, condition 9). This programme is based on the low-impact extraction of NTFPs (year 3, conditions 1 and 2) such as mushrooms and orchids. Guidelines for hunting and wildlife management (year 1, condition 12; year 2, condition 5) have been prepared under a Fauna Management Project, which began in 1998 with financing from the World Bank's PROCYMAF project and the National Autonomous University of Mexico. The communities of the Union have decided to declare a ban on hunting by people from outside the community, and community members now have to apply to the community authorities for seasonal hunting permits.

In terms of adjusting management practices, the condition that has caused the greatest difficulties is number 7 of year 1, which requires the Union to concentrate its management efforts in areas of intensive silviculture, i.e. forest stands dominated by the pine *Pinus patula* (see section 4.3.2). According to a member of the original evaluation team, the main reason for this condition is that forest management in areas of low intensity silviculture, i.e. mixed forest stands with oaks and other broadleaf species, cannot be justified in economic or ecological terms (G. Alatorre, interview, May 1999). The cost of harvesting broadleaf species during pine regeneration fellings exceeds their local market value. Consequently, significant

³⁰ Forest enterprises are required by law to submit annual reports that detail, amongst other things, the condition and health of the forest under management, the state of regeneration in harvest areas, and any measures taken to mitigate environmental impacts.

quantities of broadleaf species are left as waste in the forest, with correspondingly negative impacts on forest regeneration and genetic and structural diversity.

The Union responded to this condition by pointing out that felling coupes in areas of low intensity silviculture are small (between 0.3 and 0.75 hectares), and that surrounding protection areas harbour large populations of oaks and other broadleaf species. More importantly, the Union has been deliberately working in mixed pine-oak forests in order to improve pine stocking levels and raise overall timber yields. As discussed in section 4.3.2, these are two of the main objectives of management in forests that have been degraded by past selection fellings. For this reason, and because of the poor development of local broadleaf timber markets (see below), the Union has found it impossible to comply with Smart Wood's condition (R. Ramírez, interview, May 1999).

The foregoing discussion has dealt exclusively with the direct impacts of certification, that is, the changes resulting from the conditions and recommendations of the certification evaluation. However, certification has also had certain indirect impacts on forest management and administration in the Union. Perhaps the main indirect impact is that certification has provided detailed feedback on the Union's management practices. In the absence of the expected economic benefits (see below), the members of the Union now see certification primarily as an external monitoring and evaluation tool, or, more generally, as a way of continuously validating the Union's management approach (F. Garcia, interview, May 1999).

For the foresters of the Union's technical unit, certification has also brought certain indirect benefits. According to the unit's head of forest management, certification has given him an objective critique of his work and a chance to gain fresh perspectives from experienced outsiders (R. Ramírez, interview, May 1999). This learning process began with the original evaluation, and continues with each yearly monitoring visit. However, there have been no material rewards from certification in terms of higher salaries or other benefits. In fact, certification has substantially increased each forester's work load and the resulting pressure to maintain the cost and quality of technical services at current levels.³¹

4.6.2 Marketing of certified products

For various reasons, the Union's experience with certified products marketing has failed to live up to prior expectations. Internal technical constraints and changing market conditions have not only limited the Union's ability to compete in certified markets, but also eliminated much of the original economic rationale for pursuing certification. It will be recalled that one of the Union's main expectations for certification was that it would provide a market opening for lesser-used broadleaf species such as oak. Prior to the liberalisation of Mexico's forest

³¹ The Union's head of forest management estimates that certification has added an extra two hours per day to his work load, mainly in terms of field visits (R. Ramírez, interview, May 1999).

products markets, these species were seen as one of the keys to surviving the expected price competition from cheaper pine imports.

In the event, the Union was obliged to find markets for broadleaf species as a condition of certification. Four of Smart Wood's conditions (year 1, conditions 5 and 6; year 2, conditions 3 and 4) deal with product development and marketing of broadleaf species, ostensibly as a means of optimising forest potential. Despite their aim, however, two of these conditions (year 2, conditions 3 and 4) do not directly address a lapse in forest management, and imply a great deal of extra cost with no guarantee of commercial success.

In developing markets for lesser-used broadleaf species, the Union has again benefited from its contacts with ERA. Through the efforts of Francisco Chapela, the Union was able to obtain a small grant from the Good Wood Alliance³² in 1995 to support the development of a line of products using lesser-used broadleaf species. This grant allowed the Union to identify the most abundant broadleaf species and test samples of their timber in community workshops. The results of these tests were mostly negative: the majority of species proved difficult to work and showed a tendency to warp (Chapela and Ervin, 1996). The only species that exhibited commercial potential were the oaks.

Using the Good Wood Alliance grant, the Union was able to hire a designer and buy machinery to produce a limited range of office accessories, including boxes for business cards, pens, and computer disks. The Union also produced a simple promotional leaflet—in Spanish only—describing these and other (pine) products. A small number of product samples were sent to Oaxaca City, Quintana Roo and Europe. However, these efforts failed to generate more than sporadic market interest and regular production ceased in 1997 when the programme ended (E. Cosmes, interview, May 1999). The Union's production of broadleaf species is now almost entirely used for local firewood or charcoal consumption.

Apart from these efforts, the Union has achieved little in terms of developing certified products markets. The marketing strategy for certified wood products (year 2, condition 3) has still not been prepared, although the Union is looking to hire a marketing consultant to work with member communities to find new clients (R. Ramírez, interview, May 1999). The degree to which the Union can support members' marketing efforts is limited, however, because it is primarily a technical services organisation and has no plans to take an active role in marketing.

In terms of marketing certified pine products, the Union has also had a disappointing experience. In the past three years, only two member communities have sold pine timber under a certified label. In 1998, Capulalpam secured two orders from a Oaxacan cosmetics cooperative, Natural Products of Mazunte,³³ for display cases made from certified pine wood

³² This organisation, which is now known as the Certified Forest Products Council, is based in America.

³³ Mazunte, which is situated on the coast of Oaxaca, is a Reserva Ecológica Campesina (small farmer ecological reserve). It is the site for a village-based ecotourism project that includes natural cosmetics, woodworking, textiles and other small-scale cooperative enterprises.

(E. Cosmes, interview, May 1999). In March 1999, La Trinidad secured an order for just over 3,100 board feet of certified pine logs and boards from a film unit of the British Broadcasting Corporation (BBC) in Veracruz. The value of the order was 15,378 pesos, which included a small premium of 2% because all of the timber was charged at a flat rate of 5.31 pesos/board foot instead of being differentiated according to quality (R. Martinez, interview, May 1999). Other than these three orders, there have been no sales of certified pine timber.

The Union's relatively poor performance in certified products marketing can be attributed to a number of internal and external factors. One of the main contributing factors has been the growing strength of local timber markets. As already discussed, the impact of trade liberalisation in Oaxaca was cushioned by high transport costs and the subsequent devaluation of the peso. The expected price competition lasted only a short time before demand—and prices—for locally produced timber started to rise. For the members of the Union, the improving condition of local markets has removed the incentive to find alternative market opportunities that lay behind the original certification decision (F. Chapela, interview, May 1999).

Technical limitations have also contributed to the Union's lack of progress in certified marketing. In truth, there has been no shortage of sales inquiries for certified pine timber (J. Hernández, interview, May 1999). Market promotion by ERA (and a listing in Smart Wood's directory of sources) has generated interest from the 1995 Plus Group of timber retailers in the United Kingdom, as well as flooring companies in America. The problem is that the Union has neither the resources nor the capacity to meet this demand. Firstly, the member communities of the Union lack the appropriate milling and drying facilities to produce timber to export standards of quality and dimension. Secondly, the Union cannot afford the investments needed to open and maintain sales channels to overseas markets. Not only do communications and transport present significant problems, but also the legal and procedural requirements for establishing an export business in Mexico are stringent.³⁴ Thirdly, and most importantly, the member communities of the Union do not have the volume or consistency of production needed to satisfy current market demands. The Union's combined output is just over 10,000m³ per year, yet it is receiving sales inquiries for up to 3,000-4,000m³ of timber per month.

One final weakness—not limited to the Union alone—is a lack of expertise in negotiating sales with major buyers. For example, the forest products company Noram (see section 3.2.1) opened negotiations with the Union in 1998 to buy certified oak charcoal for shipment to its grading and packing plant in Durango. This was an opportunity for the Union to become a key supplier in what is essentially a guaranteed market. However, Noram swiftly cancelled the negotiations when the president of the Union's administrative council asked for a price premium of 50% (C. Ludvik, personal communication, February 1999). The Union may have

³⁴ Before applying for an export permit (*pedimento de exportación*), enterprises must register as exporters with Mexico's finance ministry (SHCP). Exporters must also use a licensed customs broker for shipments over a certain value. However, Mexican customs law is strict regarding the proper submission and preparation of customs documentation, and customs brokers are usually necessary for most regular exporters (US Department of State, 1997).

intended this demand to be a prelude to further bargaining, but it was a miscalculation. At the time of writing, the negotiations had not yet been resumed.

At present, the Union is not in a position either to invest in new processing technology or to realise economies of scale in production and marketing. Because the Union has always guarded its independence, it is not a member of UNOFOC, Red MOCAF or any other producer network that might undertake marketing investments on its behalf. Furthermore, the Union has few opportunities to form associations with other communities in order to combine production volumes and sales orders. This has been tried in the past with the neighbouring community enterprise of Pueblos Mancomunados, but the difference in size between Pueblos Mancomunados and the Union has made it difficult to agree to equitable terms of partnership^{35, 36} (J. Hernández, interview, May 1999). A more feasible option for augmenting the Union's production may be to allow the entry of new members. Three communities have expressed an interest in joining the Union, although not for marketing purposes but to take advantage of the Union's expertise in management planning. Nevertheless, their entry into the Union could supply the combined volume needed to meet market demands, provided they can meet the standard of management required by certification (R. Ramírez, interview, May 1999).

Lastly, it is possible that members of the Union could form joint ventures with private enterprises to secure the working capital and marketing contacts needed to exploit the market potential of certification. This is an extremely sensitive issue, given the independent nature of the Union and the experiences of its member communities during the concession era. Nevertheless, there does appear to be some interest in joint ventures within the Union. Community authorities in La Trinidad interviewed by the author expressed a strong interest in forming a partnership with a private enterprise to exploit certified markets (R. Vasquez, R. Martinez and M. Ruiz, interview, May 1999). This attitude may seem somewhat surprising given La Trinidad's previous conflict over the Smart Wood certification contract (see section 4.5). However, the participation of a third-party with the legal and technical capacity for export marketing would go far towards reducing many *comuneros'* perception of the high risk involved in entering certified markets.

4.6.3 *Social aspects*

The social component of the 1995 certification evaluation concentrated on three main aspects of enterprise management: 1. The distribution of profits between the enterprise and the general community; 2. The rotation of positions versus continuity in enterprise management; and 3. The accountability and transparency of the institutions involved in forest enterprise (G.

³⁵ Pueblos Mancomunados is one of the largest community enterprises in Oaxaca. The enterprise's current annual production volume of 25,000m³ (more than double that of the Union) is expected to rise to 40,000m³ under a new management plan (I. Santiago, interview, May 1999). Pueblos Mancomunados is beginning to export pine timber to American and Portuguese markets and has also recently been certified.

³⁶ Past experience with inter-communal associations such as IXCAXIT has also coloured the Union's attitude towards partnerships with larger communities (see section 4.2).

Alatorre, interview, May 1999). The performance of the Union's member communities in all three of these areas was generally good, although Smart Wood imposed one condition (year 1, condition 15) which calls for enterprise staff to spend at least two to three years in their positions. This condition applies not only to the managers of the enterprise, but also to community foresters. Smart Wood also recommended that communities carry out periodic audits of enterprise performance. This recommendation appears to be aimed at communities such as Comaltepec and Xiacuí, which have had problems with financial mismanagement.³⁷

The *cargo* system, with its constant rotation of positions, is a particular feature of indigenous communities in southern Mexico. The system, which differs from community to community in terms of the positions involved and the rate of turnover, ensures that a large number of community members gain experience in various aspects of enterprise management. More importantly, it reduces the risk of one group building a power base within the community or appropriating the assets of the enterprise for personal benefit (Winder, 1992). In this respect, it can act indirectly to prevent social stratification.

The *cargo* system does have its disadvantages. The main problem is a lack of continuity in managerial positions, which can lead to inefficiencies and the loss of institutional identity or 'memory'. Although some outgoing officials remain in their positions for a short time to pass on their experience to new staff, there is no formal protocol for handing over control to incoming officials. Another drawback is that *cargos* are filled by elections in the general assembly of *comuneros*. Because all *comuneros* can vote in these elections, regardless of their prior experience or knowledge, the resulting choices are not always suited to the position in question (Alatorre, 1992). Furthermore, any *comunero* is eligible for election, no matter what his current duties or responsibilities. Even the foresters of the Union's technical unit could be elected to a *cargo* at any time.³⁸

The shortcomings of the *cargo* system have not gone unheeded by the communities of the Union. In response, they have been trying to adapt the system to the demands of modern enterprise. Apart from the established practice of paying honoraria for certain *cargos* (see section 4.3.2), the communities are now considering the introduction of a handing-over period between rotations, and the preparation of job descriptions, or profiles, for certain *cargos* (G. Alatorre, interview, May 1999). Only those *comuneros* who fit the accompanying profile would be eligible for election to a particular *cargo*.

³⁷ Timber production in Xiacuí is currently suspended because of financial mismanagement.

³⁸ The personal and financial costs of the *cargo* system can be considerable. It requires *comuneros* to give up their usual jobs for one to three years, with minimal compensation and no guarantee that their original position will remain open to them. Unsurprisingly, many community members view it as an unwelcome burden. One *comunero* interviewed in Capulalpam described the system as 'three years thrown in the *basura*' (dustbin). Nevertheless, most community members recognise that *cargos* (and other traditional obligations) form part of the social contract that governs community life, and that to ignore these obligations would lead to a loss of respect from their peers and possible sanctions.

Despite these developments, the extent to which the *cargo* system can be modified is limited. Communities are understandably unwilling to change customs that have served them well for many years. The process of change is not only slow and liable to cause conflicts, but also the benefits are uncertain. Furthermore, the central feature of the *cargo* system—the elections in the general assembly of *comuneros*—is a by-product of the democratic system of governance in each community. If democracy is taken to mean 'a system of rule by the inexpert',³⁹ *comuneros* cannot be prevented from voting in elections or deciding the terms of a *cargo* simply because they lack appropriate experience or qualifications.

These limitations make it extremely difficult for external agents such as certifiers to impose conditions and secure compliance within a strictly defined time-frame. Social change comes from within the community, and at a rate determined by the community. It is not surprising, therefore, that Smart Wood's demand that enterprise staff work for a minimum length of time has met with a poor response from the members of the Union. Despite the efforts of the Union's technical unit, the communities have refused to modify the system of *cargos* in any way except to allow community foresters to serve for a longer period of time (R. Ramírez, interview, May 1999). All other positions are still subject to regular rotation, which can be as frequent as once a year in the forest enterprise of La Trinidad community.

Smart Wood's recommendation that the performance of the forest enterprise is audited by the community at regular intervals is something that the majority of communities have been doing for some time. Typically, the records of each community administration are audited every three years when positions rotate, either by a specially formed committee of *comuneros* or by an external accountant (see section 4.3.2). However, these audits do not always happen. Ideally, the audits should also take place every year if enterprise management is to be fully transparent and accountable. In La Trinidad, there is no audit as such, not even by an external accountant. However, the administration of the forest enterprise is rotated each year, and every administration has to present a report at the end of its term. This high rate of turnover may explain why La Trinidad does not consider audits to be necessary.

4.6.4 *External relations*

During interviews with members of the Union and their supporters, the most frequently mentioned benefit of certification was its favourable impact on relations between the Union and external entities such as NGOs, universities and the government. The Union can point to a number of awards and other distinctions received in the past three years, apparently in recognition of its pioneering—and certified—forest management system. In 1996, for example, the Union was awarded a National Forestry Prize by the environment ministry (SEMARNAP). In 1997, the Union received an honourable mention in the environment ministry's National Ecological Awards. The Union has also secured a number of research and technical assistance projects in the three years since certification, including the bio-prospecting contract

³⁹ The definition is taken from *The Economist*, 29 May 1999, p. 37.

with Novartis (see section 4.3.2), the Fauna Management Project with the World Bank and the National Autonomous University of Mexico (see section 4.6.1), and a recent study on common property resource management by the Mexican Council for Sustainable Forestry and Indiana University in America.

According to the environment ministry's delegate in Oaxaca, certification has indeed strengthened the relationship between the government and the Union (S. Anta, interview, May 1999). The high degree of mutual confidence between the two parties is demonstrated by the Union's role in a recent government-sponsored initiative to organise a natural resources committee for the Sierra Juárez region. The committee, which was established in 1997, is one of eight in Oaxaca that have been set up to provide community leaders, NGOs, technical service providers and the government with a forum to discuss forest policy issues. The Union, together with ERA, was an important driving force behind the creation of the Sierra Juárez committee, which brings together over 30 communities with forest management programmes. The then president of the Union's administrative council was elected to the board of the committee and went on to play a leading role in its work (S. Anta, interview, May 1999).⁴⁰

The Union and the environment ministry have also established close links in other areas. For example, the Union invited the ministry's delegate to be an observer at the recent elections for its administrative council. In return, the ministry has 'poached' the Union's technical director to lead the field promotion unit of the World Bank's PROCYMAF project in Oaxaca.⁴¹ As part of this same project, the Union has been asked to give a seminar to other forest communities in Oaxaca on its experiences with forest management, enterprise administration and, in particular, certification (J. Hernández, interview, May 1999). All of these developments have given the government's relationship with the Union an extra '*brillo*', or shine (S. Anta, interview, May 1999).

Apart from the forthcoming community-to-community seminar with PROCYMAF, the importance of the extension effect generated by the certification of the Union is difficult to gauge. According to members of the Union, ERA and the government, the reaction from other communities to the certification of the Union was initially one of jealousy. In time, however, communities have come to see the Union as an example to be followed and emulated if possible. A number of communities have visited the Union to learn more about its forest management system and, as noted in section 4.6.2, three communities are now applying to join the Union.

⁴⁰ Natural resources committees (which currently exist only in Oaxaca) are designed to provide a space for discussion of forestry-related issues at the regional level. They are linked to the state forestry council (Consejo Estatal Forestal, or COEF), which in turn is linked to the national forestry council (Consejo Técnico Consultivo Nacional Forestal, or CONAF). In Oaxaca, the state forestry council has representation from the community, government, industrial, non-governmental, professional and academic sectors, but the community sector (which includes representatives from the Union) dominates with around 60% of the votes (S. Anta, interview, May 1999).

⁴¹ This is on a part-time basis only.

Despite these effects, the influence of the Union on community certification decisions in Oaxaca appears to be minimal. To date, the only other community to have been certified in Oaxaca is Pueblos Mancomunados. According to the forest enterprise manager of Pueblos Mancomunados, the community's decision to seek certification was based on approaches from the Mexican Council for Sustainable Forestry, not on communication with the Union (I. Santiago, interview, May 1999). Apparently, the differences in size and industrial development between the two organisations have led Pueblos Mancomunados to discount the possible benefits of consulting the Union about certification.

One forum in which the Union's experience with certification has been welcomed is Mexico's national standards development initiative. The technical director of the Union represented the organisation in the social chamber of the interim national working group. The Union also participated in the regional standards consultation for the Sierra Madre del Sur, which was held in Oaxaca in 1998. The Union is now a member of CERTIFOR, the formally constituted national working group (see section 3.1). Significantly, this is the only national organisation of which the Union is a member.

Although it is undeniable that the Union's relations with external organisations have matured and strengthened in recent years, and have brought certain material benefits, the extent to which certification has been directly responsible for these developments is limited. The Union's relations with SEMARNAP, the environment ministry, have always been good. The prizes won by the Union were not a direct product of certification, although they may have been linked to the publicity generated by certification. Furthermore, the Union's reputation for openness and innovation, and its links to key non-governmental organisations such as ERA, the Mexican Council for Sustainable Forestry and the Environmental Studies Group (GEA),⁴² made it a natural candidate for external funding well before it was certified.

Certification should be seen in the context of an ongoing process of investment in political capital. Ever since its foundation, the Union has placed a high value on recognition from external organisations (F. Chapela, interview, May 1999). The Union has therefore opened itself to outside influences and ideas, and, in turn, has expended a great deal of effort on promoting its management philosophy to government, environmental organisations and neighbouring communities. Certification can be seen as one manifestation of this approach, in that it involves validation of forest management by a third-party, and, at the same time, projects a favourable image of the organisation. This image may allow the Union to attract extra funding or awards, but, more importantly, it gives the Union the confidence and moral authority it needs to consolidate its present position and build alliances for the future.

⁴² Members of these organisations worked with the communities of the Union in the years during and after their campaign against the FAPATUX concession (see section 4.2).

5 DISCUSSION AND CONCLUSIONS

5.1 The uncertain benefits of certification

In terms of the sophistication of its management practices, the amount of external support that it has received, and the degree of internal commitment to sustainable forest management, the Union is unlike many other community forestry organisations in Oaxaca. These factors, however, have contributed to the Union's status as a certification pioneer. The Union's advanced management system has allowed it to meet the required certification standard without major adjustments. The external support has removed much of the risk associated with certification. Lastly, the internal commitment has sustained the Union's faith and interest in certification, despite minimal economic benefits.

In terms of timber processing and marketing, the Union is more typical of community forestry organisations in Oaxaca. About 30 communities with temperate forest resources are at a similar, or more advanced, stage of development. Apart from isolated instances, the Union has been unable to penetrate mainstream markets for certified products. Admittedly, the incentive to market certified products has been weakened by strong local demand for the Union's main product—pine sawnwood. The bulk of the Union's sales are still provided by local markets, which are less valuable than certified (export) markets, but carry fewer risks and are less demanding. Even so, the Union cannot compete in certified markets because it lacks sufficient industrial capacity and the necessary business skills or linkages.

These considerations raise a difficult question for community forest certification in Oaxaca: what do the majority of communities—who lack the sophistication, support and internal cohesion of the Union, yet share its commercial weaknesses—stand to gain from certification? In the absence of a strong market rationale, most communities will be unable or unwilling to meet the costs of certification, even if it offers ancillary benefits such as regular monitoring and evaluation, or improved relations with external entities. The problem with ancillary benefits is that their perceived importance tends to vary from community to community. Even though the Union may be willing to accept certification as a monitoring tool or as an image enhancement, other communities may not be interested in these functions, or may have no need of them.

At present, there is evidence to suggest that certification is not a priority for communities in Oaxaca. The World Bank's PROCYMAF project, which has made funds available for technical studies into forest management, marketing and certification, has received very little demand for certification-related studies (G. Segura, interview, April 1999). The lack of demand is attributed to a corresponding lack of promotion, and there are plans to involve the state delegation of the environment ministry and the Mexican Council for Sustainable Forestry in a more intensive campaign of information dissemination.⁴³

⁴³ The Oaxaca office of WWF is also working on forest certification issues in the Sierra Juárez region. However, a lack of financing has delayed the start of a project to promote land-use planning at the community level and the independent certification of commercial forestry operations (H. Janze, interview, May 1999).

However, the poor demand reflects not only low awareness or a lack of understanding, but also a certain lack of interest. Communities are deterred by the costs of certification and the burden of paperwork required to enter the scheme (R. López, interview, May 1999). Furthermore, as the study of the Union has shown, forest communities tend to place the satisfaction of current needs above the maximisation of profit, sales revenues or enterprise growth. Under present market conditions, offering certified products is a profit-maximisation strategy that sits uneasily with the business objectives of most forest communities. Considerations such as these have led one of the main non-governmental organisations in Oaxaca, ASETECO (Asesoría Técnica a Comunidades Oaxaqueñas), to decide against promoting certification to its community partners (R. López, interview, May 1999).

Clearly, measures must be taken to increase the attractiveness of certification to forest communities if it is to become a valid and relevant tool for sustainable forest management in Mexico. It is important, however, that these measures are not simply props for certification. If the certification process cannot provide genuine and lasting benefits for forest communities, then alternative policy and economic instruments must be developed. The following section discusses some of the emerging options for increasing the appeal and potential applications of certification.

5.2 Widening the appeal of certification

5.2.1 Lowering entry barriers

Several measures have already been suggested for reducing the costs of certification for community producers (see section 3.3.1). To recap, these include the provision of information and technical assistance, group or resource manager certification systems that generate financial and technical economies, and the development of a competitive market for certification services. In addition to reducing costs, some of these measures would reduce the administrative burden on individual communities and thus lower two of the main entry barriers to FSC-based certification schemes.

The purpose of information provision would be to raise awareness of certification (and its alternatives) among forest communities. At the same time, communities could be offered assistance in achieving cost-effective technical solutions to a variety of forest management problems, including the implementation of external management standards. In Mexico, such services could be provided by government agencies, NGOs or foreign donor programmes. Alternatively, they could be incorporated into the forest management programmes of private service providers. The World Bank, for example, is strengthening the capacity of private service providers to offer assistance in sustainable forestry practices through the PROCYMAF project in Oaxaca (G. Segura, interview, April 1999).

Some private service providers could be involved directly in the certification process through the mechanism of resource manager or consulting forester certification. This differs from conventional forest management certification in that the subject of certification is a consulting forester or company contracted by landowners to manage their forests (Rainforest Alliance, 1996). Several FSC-accredited certification bodies (including Smart Wood) operate certification schemes based on this mechanism. These have been purposely developed for small landowners and can reduce the cost and administrative requirements of individual certification.

An alternative mechanism for reducing costs is group certification. This refers to the evaluation and certification of groups of forest owners or managers under a single certificate (FSC, 1998). The benefits of grouping include the reduction of administration and organisational costs, and cost-sharing of evaluation expenses. Depending on the homogeneity of the group, it may also be possible to reduce the sampling requirements (and hence costs) of certification evaluations. The structure of the community forestry sector in Mexico suggests that group certification schemes may have some potential. The many second-order producer organisations⁴⁴ that populate the sector would provide a natural institutional base for group certification. The level of heterogeneity in the sector might limit the benefits of group certification in terms of reduced sampling requirements, but would not prevent producers from realising administrative and organisational economies.

Certification costs could be reduced indirectly by encouraging a competitive market in FSC-accredited certification services. At present, Smart Wood enjoys a virtual monopoly in the Mexican market through its partnership with the Mexican Council for Sustainable Forestry. Admittedly, there is no evidence that this monopoly is harming consumers. The market for certification services in Mexico is small, and Smart Wood usually subsidises evaluation costs for small or low-income producers. However, without opening the market to other certification bodies (both local and foreign), it will not be possible to determine whether competition can lower costs or generate new approaches to the challenges of community forest certification.

5.2.2 Alternative market applications

The conventional purposes of certification are, firstly, to verify the standard of forest management, and, secondly, to add value to the trade in finished and unfinished wood products. However, there are obstacles to realising the value-added potential of certification, as demonstrated by the experience of the Union. The primary obstacle is that certification does not, and cannot, guarantee market access or market share. It may enhance these variables, but only if the product already meets existing export market requirements for price, quality, volume availability and so on. In contrast to the standards for fair-trade and organic agricultural products, none of these requirements are directly addressed by existing forest certification standards (Courville, 1999).

⁴⁴ These include community unions, cooperatives, associations, etc.

The difficulty of marketing certified wood products has prompted a search for new market and non-market applications of forest certification. Even WWF, one of the strongest supporters of forest certification, has recognised the current limitations and begun to review alternative applications (S. Maginnis, personal communication, June 1999). To date, there are few concrete market alternatives, although FSC has been sponsoring standards development and field trials for the certification of some non-timber and non-traditional forest products (NTFPs). FSC has also begun to evaluate the feasibility of bringing environmental services—in particular, carbon sequestration—into current forest certification systems.

The future potential of certified non-timber goods and services for community forest producers in Mexico is difficult to gauge. As discussed in section 2.1, Mexico is an important producer of several commercially valuable NTFPs. It is possible that certification standards (and markets) could be developed for some of these products, in particular pine resin and its derivatives (Viana *et al.*, 1996). However, communities are likely to face many of the same problems with marketing certified NTFPs as they do with certified wood products. In most cases, the production of NTFPs for export requires greater managerial capacity and more costly processing technologies than domestic markets (Hyman, 1996). In addition, the development of certified markets for products such as turpentine (which is distilled from pine resin) will require intensive promotional and educational campaigns. It is unclear whether producers, processors, distributors or retailers—or indeed, consumers—should be expected to bear the cost of these activities.

The certification of forestry-based carbon sequestration activities, or carbon offsets, also raises some difficult questions. Although a global mechanism has been established for structuring carbon offset projects between developed and developing countries (the Clean Development Mechanism, or CDM), the inclusion of forestry in the CDM has yet to be confirmed (Stuart and Moura Costa, 1998). Even if it is, the size of the market for forestry-based carbon offsets may be limited by technological and institutional constraints in the (tropical) forestry sector (Smith *et al.*, 1999). More importantly, the forestry practices that are designed to sequester carbon may not be compatible with community objectives or, indeed, with current certification standards. A recent paper on FSC's role in carbon certification notes that 'most large-scale forestry programmes for carbon credits will be plantations that would in all likelihood not be acceptable under the FSC Principles and Criteria' (Tam, 1999).⁴⁵

Experience with other market-based incentives for environmental protection suggests that certification could play a role in international financial markets. In particular, certification offers a means of satisfying the growing demand within financial markets for information about a company's environmental liabilities. By signalling the extent of a company's environmental risk, certification could facilitate access to (and lower the cost of) equity financing, debt financing or insurance. Market influence could be further enhanced by regulatory requirements for financial markets to be kept informed of potential environmental liabilities (Grabosky,

⁴⁵ It is also unlikely that plantations would be acceptable to Mexico's environmental lobby (see section 3.1).

1995). In view of the small size and risk-averse business culture of most community forest enterprises in Mexico, the value of this application may be greater for joint ventures and other corporate-community partnerships than for individual enterprises. In certain cases, such partnerships could use certification to attract ethical investment, for example through share offerings.^{46, 47} It is worth noting, however, that certified community enterprises may also find it much easier to attract corporate partners. The image projected by certification—in particular, that certified enterprises are law-abiding, stable and efficient concerns—is likely to inspire confidence in prospective business partners.

5.2.3 *Alternative non-market applications*

Markets may not be the only source of alternative applications for certification. A further possibility is policy implementation, and, in particular, the use of certification to replace direct controls on the forestry sector. For example, rather than engaging in direct intervention, governments could use certification to structure self-regulatory systems for forest producers. Some countries are already moving in this direction. For example, Bolivia's forestry law of 1996 allows for independent, third-party certification to replace statutory audits of forest concessions designed to verify compliance with national management standards (Government of Bolivia, 1996, Article 91). The use of market-based instruments to implement public policy in this manner has been termed 'governing at a distance' (Rose and Miller, 1992, cited by Grabosky, 1995).

In Mexico, a possible parallel to the Bolivian example is the technical audits that are carried out by PROFEPA (Office of the Attorney General for Environmental Protection). PROFEPA is a subordinate agency of the environment ministry, which is responsible for enforcing environmental laws and regulations. PROFEPA officials in each state conduct regular audits of forest management operations to verify their compliance with plans, inventories and other tools of management, as well as the relevant laws and official norms. In many forest-rich states, however, PROFEPA lacks the necessary budget or staffing levels to comply fully with its mandate. In Durango, for example, the agency has only nine forestry inspectors to cover the fourth-largest state in Mexico (Environmental Law Institute, 1998). Its effectiveness is further compromised by corruption and political interference, which contribute to a loss of trust and influence among forest communities.

⁴⁶ Companies investing in community-owned land for forestry purposes (see section 2.2.3) are required by law to issue a special series of shares (identified with letter 'T') which represent the value of the contributed land (Government of Mexico, 1992b, Articles 126-133). The law limits foreign ownership of these 'T' shares to 49% of the total holding. However, in addition to 'T' shares, companies can issue an unlimited number of ordinary shares which can be 100% foreign-owned (Kryzda, 1995).

⁴⁷ Gullison *et al.* (1998) make it clear that certification, although it may reduce a company's perceived environmental risk, must also offer some protection against commodity price cycles (i.e. reduce market risk) if it is to attract ordinary investors away from conventional, non-certified forestry companies.

One solution to these problems would be to privatise the monitoring and enforcement functions performed by PROFEPA. Certification could be brought into the resulting market in one of two ways. Firstly, certifiers could be allowed to bid for monitoring and enforcement contracts. By diversifying into this activity, certifiers could obtain the resources to expand and add value to their forest certification services, for example by creating market promotion or information services. Secondly, certification could be allowed to replace external audits, in much the same way as Bolivia's 1996 forestry law has allowed. This would represent a genuine non-market benefit of certification, in that it would replace potentially corrupt, inefficient, or politically motivated interference in forest management with a more impartial and directly accountable (to the producer) private service.

The introduction of a self-regulatory system based on certification would fit in well with the overall direction of forest policy and legislation in Mexico in the past seven years, which has been towards deregulation and privatisation. However, certain preconditions must be met before such a system can be implemented. One of the most important preconditions is political will. Although Mexico's environment and commerce ministries have been encouraging environmental self-regulation by industry with the ISO 14000 series of environmental management standards (SEMARNAP, 1998b), it is uncertain whether similar policies would be considered for the forestry sector. The Mexican government has expressed a strong interest in forest certification, but some commentators believe that certification will be kept separate from regulation, at least for the present moment (S. Madrid, interview, April 1999).

A second precondition is that certification standards are compatible with legal requirements. Clearly, self-regulation is more likely to succeed if the demands of the two systems do not diverge too widely. Steps are already being taken to harmonise management planning requirements with certification principles and criteria, although not specifically for the purposes of self-regulation. The World Bank's PROCYMAF project is currently developing uniform criteria and indicators for forest management in Mexico's temperate forests. These will be closely linked to existing certification standards, and may be brought into the legal system at some point in the future (G. Segura, interview, April 1999).

A third precondition is that the forestry sector contains an adequate number of enterprises with the resources to self-regulate. At this point, the low level of development of community forest enterprises in Mexico again becomes a limiting factor. Under present conditions, only a small proportion of community forest enterprises would have the resources to participate in a self-regulatory system based on certification. However, by linking the self-regulatory system to environmental objectives, rather than production or marketing objectives, it may be possible to justify subsidies and other incentives to increase participation.

The foregoing discussion on lowering entry barriers and creating new market applications has identified a number of incentives for certification, some of which could be used in a self-regulatory system. Additional incentives could be channelled through the tax system, as they

have been for plantation development.⁴⁸ The direct value of tax incentives to the community forestry sector will be limited by the low tax burden of community enterprises.⁴⁹ However, similar incentives could be offered to private investors in joint ventures and other corporate-community partnerships based on (certified) natural forest management. Alternatively, financial incentives could be targeted at timber processing technologies and forestry technical services (two of the main inputs to community forest enterprise). Community forest enterprises participating in a self-regulatory system based on certification could be given access to subsidised credit for buying machinery used in the production process or for contracting private service providers.⁵⁰

5.3 The scope and direction of certified community forest enterprise

In contrast to industrial enterprises, small-scale and community forest enterprises in developing countries tend not to have high levels of capital investment, or to specialise in single-species production or single-purpose utilisation. These characteristics give communities the flexibility to alter their production objectives and management patterns quickly in response to fluctuating market prices, opportunities and problems⁵¹ (Padoch and Pinedo-Vasquez, 1996). In certain markets, however, the economies of scale enjoyed by industrial enterprises can be more important than flexibility. The increase in competition that followed the liberalisation of Mexico's forest products market favoured large industrial suppliers in America and Canada because they could minimise costs through technological innovation, production streamlining, improved marketing and other internal economies.⁵²

Economies of scale are also important in giving enterprises a competitive advantage in certified forest products markets. Large enterprises can invest in process technology improvements to meet the high expectations of product and service quality in certified markets. At the same time, they are able to spread the risk and uncertainty of these investments over more units of production. Large enterprises can also appoint specialist staff to deploy certifiable management systems, identify market opportunities for certified products, or publicise corporate environmental policy and practice. Community forest enterprises are likely, of necessity, to have a work force of generalists (or have traditions which preclude the development of specialist skills, such as rotation of managerial positions). Size does not

⁴⁸ Tax incentives for plantation forestry in Mexico include the reduction and deferral of sales, asset and property taxes, and the transfer of tax losses between associated companies.

⁴⁹ Amongst other exemptions, community enterprises do not have to pay income tax (Government of Mexico, 1980, Article 10-B).

⁵⁰ As with all other incentives, it would be necessary to ensure that these are directed to producers that could not otherwise pursue certification.

⁵¹ In practice, it can be difficult to distinguish between community and industrial enterprises in Mexico on the basis of investment levels and degree of specialisation. Some community forest enterprises, such as El Balcón in Guerrero and Nuevo San Juan Parangaricutiro in Michoacán, are large, vertically integrated operations with high levels of capital investment. In effect, they define the standard for industrial forest enterprise in the surrounding region.

⁵² The American and Canadian forest industries as a whole have also benefited from external economies such as public support of transport infrastructure (Chapela, 1997).

confer an automatic advantage (even large enterprises can have difficulty in identifying and serving certified products markets⁵³), but it should, in the long run, give industrial enterprises a competitive advantage over their community counterparts.

If community forest enterprises wish to compete with industrial enterprises in the open market for certified products, it seems likely that they will have to sacrifice some of their flexibility for increased growth and investment. As emphasised by the study of the Union, the main route to growth for enterprises with a limited output⁵⁴ and few sources of capital is to seek alliances and partnerships with other communities or with private companies. Such groupings can share risk and pool their resources to reduce costs and improve marketing power (Cubbage, 1983). Large associations, such as UNOFOC (see section 3), can draw on the resources of their members and external agencies to provide specialist processing and marketing services.

Cooperation between communities, or between private companies and communities, to achieve economies of scale is not without drawbacks. The inherent independence of most forest communities in Mexico can lead to administrative, organisational and political problems (Alatorre, 1992). The adjustment of business practices to a new scale of enterprise may also have social repercussions. Labour specialisation, for example, implies the limitation or suspension of practices such as the rotation of managerial positions. In some Mexican communities, such changes have led to social stratification and a reduction in what Alatorre (1990) terms the 'socialisation' of forestry benefits. Higher capital outlays can reduce the demand for labour, unless displaced workers can be re-deployed elsewhere in the enterprise. Most importantly, perhaps, an increase in the scale and complexity of enterprise can make it harder for community members to participate in, or influence, forestry decision-making. Business objectives notwithstanding, these social and institutional constraints may limit the scale economies that a community forest enterprise or association can achieve in practice.

The implications of competition in certified markets for the scope and direction of community forest enterprise argue for a collective approach to helping communities through the certification process. Where appropriate, interventions should be targeted at groups of enterprises rather than individual communities. Where such groups do not already exist, support should be linked to their formation. By promoting inter-communal linkages and cooperation, the collective approach should enable community enterprises not only to improve their competitiveness in certified markets, but also to reduce their dependence on external support for dealing with future market challenges.

⁵³ For example, Collins Pine Company in America, which has forest holdings of over 120,000 hectares, has encountered a number of barriers to marketing certified products, including limited demand, unfavourable consumer perceptions, limited distribution channels, difficulties in meeting specific demands and limited product availability (Hansen and Panches, 1999).

⁵⁴ Output may be limited by a number of factors, including forest accessibility and community objectives. In the absence of such constraints, individual communities may be able to realise economies of scale by increasing the area or intensity of harvesting.

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APPENDIX 1. List of people interviewed, April-May 1999

Mexico City, 27 April-2 May 1999

- Sergio Madrid Zubiran, Executive Director, CCMSS
- Gonzalo Chapela, Red MOCAF
- Marta Turok, President, AMACUP
- Gerardo Segura, Project Director, PROCYMAF
- Liviu Amariei, Technical Coordinator, PROCYMAF

Oaxaca, 3-15 May 1999

- Francisco Chapela Mendoza, President, ERA
- Jesús Hernández, Head of Promotion Unit, PROCYMAF (and Technical Director, UZACHI)
- Rodolfo López Arsola, President, ASETECO
- Jonas Ortiz, Coordinator of Forest Enterprise Development, ASETECO
- Israel Santiago García, Forest Enterprise Manager, Pueblos Mancomunados
- John Bala, Adviser, Pueblos Mancomunados
- Mario Palacios Cueto, Manager, Puertas Finas de Monte Alban
- Salvador Anta Fonseca, Federal Delegate, SEMARNAP Oaxaca
- Hans Georg Janze, Programme Coordinator, WWF Mexico
- Romualdo Pacheco Paz, President, COCOEFO
- Benjamin Luna Bautista, President of Administrative Council, UZACHI
- Francisco Garcia Belmonte, Treasurer of Administrative Council, UZACHI
- Reynaldo López Garcia, ex-President of Administrative Council, UZACHI
- Ricardo Ramírez Domínguez, Head of Forest Management, UZACHI
- Elizer Martinez, Commission Secretary, Capulalpam
- Carlos Perez, Finance Secretary, Forest Enterprise, Capulalpam
- Cunegunda Perez, Sawmill Secretary and Record Keeper, Capulalpam
- Emanuel Cosmes Perez, Sawmill Administrator 1996-98, Capulalpam
- Pedro Arreortua, Council of Distinguished Men, Capulalpam
- Francisco Sanchez Arreortua, Council of Distinguished Men, Capulalpam
- Saul Aquino, Council of Distinguished Men, Capulalpam
- Gilbert Hernandez, Council of Distinguished Men, Capulalpam
- Reynaldo Vasquez, Commission President, La Trinidad
- Habacuc Michael Ruiz, President of Oversight Committee, La Trinidad
- Ricardo Martinez Ramirez, General Secretary, Forest Enterprise, La Trinidad

Xalapa, 16-17 May 1999

- Gerardo Alatorre, Programa Pasos, GEA